This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

LANE MEDICAL LIBRARY STANFORD
2 45 0422 7893

...GRAPHICAL APPLICATIONS

PEROXIDE OF HYDROGEN

(MEDICINAL)

GLYCOZONE

AND

HYDROZONE

BY

CHARLES MARCHAND, Chemist,

GRADUATE OF THE "ECOLE CENTRALE DES ARTS ET MANUFACTURES DE PARIS" (FRANCE).

TREATMENT OF DISEASES CAUSED

BY

GERMS, BACTERIA, MICROBES.

SIXTH EDITION

NEW YORK.

1895.

U671
M31
1895

LANE

DICAL LIBRARY

VI COOPER LANE FUND

THE THERAPEUTICAL APPLICATIONS

OF

PEROXIDE OF HYDROGEN

(MEDICINAL),

GLYCOZONE

AND

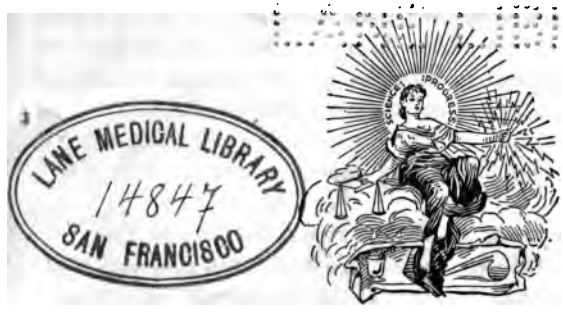
HYDROZONE

BY

CHARLES MARCHAND, Chemist,

GRADUATE OF THE "ECOLE CENTRALE DES ARTS ET MANUFACTURES DE PARIS" (FRANCE).

LANE MEDICAL LIBRARY
14847
SAN FRANCISCO



TREATMENT OF DISEASES CAUSED

BY

GERMS, BACTERIA, MICROBES.

NINTH EDITION.

NEW YORK.

1895.

COPYRIGHT 1805, BY CHARLES MARCHAND.

M31
1893

TO THE MEDICAL PROFESSION.

I respectfully call your attention to the fact, that the highest honors at the World's Columbian Exposition have been awarded to Charles Marchand's Peroxide of Hydrogen (Medicinal) and Glycozone for superiority in strength, purity and excellency in keeping properties.

The above statement is the result of a very careful and thorough examination and test made by the most competent chemists ever assembled for such a purpose.

The commercial Peroxide of Hydrogen should be used only for bleaching purposes, as it is totally unfit, unsafe, and worthless as a remedy.

The low price of the commercial article (which I sell in bulk to bleachers at five cents per pound) explains why unscrupulous druggists attempt to place the reputation of the physician, as well as the life of his patient, in jeopardy, by substituting worthless imitations while they pocket a profit varying from 500 to 1000 per cent.

In fact, the substitution of the commercial for the Medicinal Peroxide, is calculated to work serious injury and destroy the physician's confidence in this most potent remedy.

The unsolicited articles, written by contributors to the medical literature and published by medical journals, prove that Marchand's Peroxide of Hydrogen (Medicinal) is the only reliable preparation for its uniformity in strength, purity and stability, and also for its healing and bactericide properties.

See page v, "List of Contributors to Medical Literature," also article headed "Hydrogen Dioxide," by Prof. L. D. Kastenbine, page 154; also article headed "The Real Value of the Medicinal Peroxide of Hydrogen Preparations Found in the Market," by H. Endemann, Ph. D., chemist, formerly associate chemist to the New York City Board of Health, page 1.

The virtues of my Peroxide of Hydrogen are due to the special process by which I prepare it and it retains its germicide and curative power for any length of time when kept with ordinary care.

I now manufacture **"Hydrozone"** at the request of the leading medical profession whom experience has taught, that in the treatment of certain diseases caused by germs, it is necessary to have a remedy upon which a physician may depend, and the bactericide power of Marchand's Peroxide of Hydrogen (Medicinal) 15 volumes, it not always sufficient to thoroughly destroy at once the microbian element, which frequently develops with such prodigious rapidity that it is urgent to check and overcome its virulence in the shortest possible time, so as to prevent the whole system of economy from being invaded by ptomaines.

In order to protect the profession against fraud, Charles Marchand's Peroxide of Hydrogen (Medicinal) is put up only in (small size) 1¾-oz., 4-oz., 8-oz. and 16-oz. bottles bearing a blue label, white letters, red and gold border, with my signature.

Glycozone is put up only in 4-oz., 8-oz. and 16-oz. bottles, bearing a yellow label, white and black letters, red and blue border, with my signature.

Hydrozone is put up only in extra small size (for Dentists), small, medium and large size bottles, bearing a red label, white letters, blue and gold border, with my signature.

Please prescribe in original, unbroken packages, to avoid imitations and disappointment.

Yours respectfully,

Charles Marchand

Chemist and Graduate of the "Ecole Centrale des Arts et Manufactures de Paris" (France).

STANDARD

FOR

CHARLES MARCHAND'S

PEROXIDE OF HYDROGEN,

(MEDICINAL)

AND

HYDROZONE.

First—Free from soluble salts.

Second—Free acid contained in 100 cubic centimetres requires not less than one c. c. and not more that three c. c. of normal volumetric soda solution, to be neutralized.

Third—Peroxide of Hydrogen contains not less than 15 volumes of available oxygen. Hydrozone contains not less than 28 volumes of available oxygen.

One cubic centimetre of Peroxide of Hydrogen diluted with 150 c. c. of distilled water, containing 2 c. c. of C. P. sulphuric acid decolorizes at least 15 cubic centimetres of a solution containing 5,665 grammes of C. P. permanganate of potash, per liter of distilled water.

One c. c. of Hydrozone being submitted to the above test decolorizes at least 28 c. c. of the same solution of permanganate of potash.

Marchand's Peroxide of Hydrogen and Hydrozone retain their strength for any length of time, when kept in stock with ordinary care at a temperature not exceeding 70° F.

Prepared only by Charles Marchand

Chemist and Graduate of the "Ecole Centrale des Arts et Manufactures de Paris" (France.)

NOTE.—One cubic centimetre of "Hydrozone" is equivalent in bactericide power, to two cubic centimetres of my medicinal Peroxide of Hydrogen and is far superior as a healing agent. See p. 5: Important Information on Peroxide of Hydrogen and Hydrozone.

L. D. KASTENBINE, A. M., M. D.

Professor of Chemistry, Urinology, and Medical Jurisprudence, Louisville Medical College; Professor of Chemistry, Louisville College of Pharmacy,

Reports as follows in the *Louisville Medical Monthly* for July, 1894:

(See article headed "Hydrogen Dioxide," H_2O_2, page 154.)

Of the various brands of Hydrogen Dioxides I have examined, I find Marchand's to be the one which yields the largest amount of available oxygen under all conditions of exposure, about fifteen volumes, and the one which contains the minimum percentage of free acid. All the marketable articles I have seen are free from barium compounds, but the majority do not come up to the 15 volume standard, but are 6, 8, 10 and 12 volume solutions. * * *

The above statement is strongly confirmed by the following report:

THE REAL VALUE OF THE MEDICINAL PEROXIDE OF HYDROGEN PREPARATIONS FOUND IN THE MARKET.

By H. ENDEMANN, Ph. D., Chemist, of New York.

Formerly Associate Chemist to the New York City Board of Health.

Published by the *Times and Register*, of Philadelphia, Pa., Dec. 15, 1894.

My attention having repeatedly been called to several reports and analyses made by different chemists and published by some medical journals, I concluded to examine all the brands of peroxide of hydrogen which I could find on the market, in order to ascertain the real value of each when intended to be used as an antiseptic remedy, both internally and externally.

The reports on the subject which have come to my knowledge are quite contradictory, and my object is to impart to the medical profession the results of my experiments, which have been made on fourteen fresh samples, purchased by me in duplicate, directly from the manufacturers or their selling agents.

These brands have been tested for the volume of available oxygen, the amount of residue, the degree of acidity, and the amount of soluble baryta salts contained therein, as per following table:

BRANDS OF H_2O_2 SOLUTIONS.		Volume of Available Oxygen determined by means of a solution containing 5.665 Grammes of Permanganate of Potash per liter of distilled water.	Residue obtained from 100 C. C. of Peroxide of Hydrogen dried at 120 degrees C.	Acidity expressed in Cubic centimetres of Normal Volumetric Soda Solution for 100 C. C. of Peroxide.	Baryta found in Soluble Baryta Salts contained in 100 C. C. of Peroxide.
No. 1. John Bene's	H_2O_2 (Medicinal)	10.50	0.1886	2.19	None
No. 2. Hydrozone.....		27.35	0.2180	3.11	"
No. 3. Larkin & Scheffer's	H_2O_2 (Medicinal)	9.65	0.1206	6.75	"
No. 4. Mallinckrodt's	" "	9.55	0.1408	1.43	"
No. 5. Marchand's	" "	16.55	0.564	1.29	"
No. 6. McKesson & Robbins	" "	10.95	0.0540	0.44	"
No. 7. Merck & Co.'s	" "	0.50	0.2418	4.57	"
No. 8. Oakland Chemical Co.'s	" "	10.50	0.0382	0.34	0.0017
No. 9. Peuchot's	" "	10.60	0.4674	1.77	0.0018
No. 10. Powers & Weightman's	" "	8.40	0.0830	2.03	None
No. 11. Pyrozone, 3 per cent.	" "	11.20	0.0534	0.76	"
No. 12. Rosengarten & Son's	" "	3.10	0.1002	0.25	"
No. 13. Smith, Kline & French Co.'s	" "	6.15	0.0880	2.6	"
No. 14. E. R. Squibb's	" "	12.40	1.004	12.04	"

By referring to this table it is easily understood that sample No. 2, **"Hydrozone"** is far superior to any other brand which I have ever examined.

When Hydrozone is diluted with distilled water, in the proportion of half and half, the resulting mixture contains about 13.5 volumes of available oxygen, and its bactericide power still remains the same as the bactericide power of Sample No. 5, which contains 16.55 volumes of available oxygen.

Sample No. 14 comes next to sample No. 5, but it is readily seen that the degree of acidity is entirely too large for a preparation which is to be applied to the most sensitive diseased mucous membranes.

Acidity.—The 14 brands which I have examined contain free acids (phosphoric, sulphuric, muriatic); and I must say that Peroxide of Hydrogen (medicinal) should never be made neutral before using, even in the most delicate cases. Neutral Peroxide of Hydrogen rapidly decomposes under all conditions of exposure.

The keeping properties of H_2O_2 solutions vary a great deal with the degree of purity and the percentage of free acids contained therein.

If the proportion of acid is too large, the profession well know that it acts as an irritant upon diseased surfaces. If it is too small, the solution don't keep well.

My opinion is, that a standard solution of medicinal H_2O_2 must answer the following tests:

1. It should contain at least 15 volumes of available oxygen.
2. The quantity of free acids contained in 100 cubic centimetres should require not less than 1 c. c. and not more than 3 c. c. of normal volumetric soda solution, to be made neutral. Such a small quantity of free acid is not objectionable.
3. It should not contain any soluble baryta salts.
4. It must be free from sediment.

It is to be noticed that brands No. 7 and No. 12 are valueless.

The brands No. 8 and No. 9 are not fit for medicinal uses, owing to the fact that they contain soluble baryta salts.

The brand No. 3 has a heavy sediment of sulphate of baryta, which may be considered inert towards the system, but it is certainly detrimental to the keeping qualities of this preparation.

Brand No. 14, which is sold as a ten volume solution, is really twelve volumes, but it is too acid.

Brand No. 5, which is sold as a fifteen volume solution, is really 16.55 volumes, viz.: About 10 per cent. above the standard.

The brand No. 2, "Hydrozone," which is sold without any mention of volume, is really a 27.35 volume solution, viz.: Ninety per cent. above the standard.

None of the other brands come up to the standard, but on the contrary they run from 35 to 55 per cent. below.

NOTE.—Dr. H. Endemann in his subsequent report headed: "The Keeping Qualities of the Various brands of Peroxide of Hydrogen," published by the Philadelphia *Medical Times and Register*, March 2, 1895, writes:

"All the above samples having been kept for three months in the dark at a temperature ranging between 63 degrees and 52 degrees F., the only brand which still answers to the standard is the No. 5 (14.90 volumes).

Brand No. 2, "Hydrozone," which was 27.35 volumes in November, (90 per cent above the standard) showed 25.90 volumes when retested in February, 1895 (about three times as strong as brands Nos. 1, 3, 4, 8, 9, 11, 14), consequently its high degree of strength as well as its keeping properties, are thoroughly reliable.

My opinion concerning Peroxide of Hydrogen for medicinal purpose is, that strong solutions will soon be exclusively in use, as I consider that even a 15-volume solution is not always powerful enough. Should this strength be sufficient in many cases, the 27 or 30 volume solution can easily be reduced to 15 volumes, so that the strong solution will answer all requirements."

LIST OF CONTRIBUTORS TO MEDICAL LITERATURE.

PAGE

G. F. Adams, M. D., of Pulaski, N. Y., "Hydrogen Peroxide in Diphtheria".. 82

Lewis H. Adler, Jr., M. D., of Philadelphia, Pa., "The Operative Treatment of Fistula-in-Ano".....109

Charles W. Aitkin, M. D., of Flemingsburg, Ky., "Wound Closure After the Empyema Operation"..... 98

John Aulde, M. D., of Philadelphia, Pa., "Hydrogen Dioxide; a Resume".... 76

John Aulde, M. D., of Philadelphia, Pa., "Substitution and Its Attendant Evils" 93

Bacteriological World, (editorial,) Battle Creek, Mich., "Hydrogen Peroxide in Pelvic Abscess"..... 94

Edw. J. Bernstein, M. D., of Baltimore, Md., "Diphtheria and the Use of Hydrogen Dioxide in Its Treatment"..... 81

Gustavus Blech, M. D., of St. Louis, Mo., "Rational Therapeutics of Cholera Infantum".....185

J. Mount Bleyer, M. D., of New York, "Some Practical Hints in Connection with Intubation of the Larynx, and a Resume of 206 Cases of Diphtheria Operated on from 1886 to 1888"..... 67

F. H. Brobst, M. D., of Reading, Pa., "Report of a Case of Extensive Gunshot Wound.....175

H. F. Brownlee, M. D., of Danbury, Conn., "An Interesting Case of Empyema with Special Reference to the Use of Peroxide of Hydrogen"..... 99

R. Charest, M. D., of St. Cloud, Minn., "Peroxide of Hydrogen for Gonorrhœa" 69

R. M. Chase, D. D. S., M. D., of Bethel, Vt., "Dental Medicine"..... 94

M. A. Clark, A. M., M. D., of Barnesville, Ga., "The Treatment of Typhoid Fever".....150

Henry W. Coe, M. D., of Portland, Oreg., "Thiersch's Grafts in Extensive Destruction of Soft Parts About Large Joints".....169

Herman L. Collyer, M. D., of New York, "Treatment of Vaginitis by Peroxide of Hydrogen (Medicinal)".....126

James Osbourn De Courcy, A. M., M. D., of St. Libory, Ill., "Diseases of the Alimentary Canal; Treatment. Internal and External Hydrotherapy. Medication".....156

James Osbourn De Courcy, M. D., of St. Libory, Ill., "Treatment of Acute and Chronic Ulcers"..... 147
W. B. Dewees, M. D., of Salina, Kans., "Medicinal vs. Commercial Peroxide of Hydrogen"..... 102
J. H. De Wolf, M. D., of Baltimore, Md., "Medicinal Peroxide of Hydrogen and Glycozone"..... 87
S. Potts Eagleton, of Philadelphia, Pa., "A Resume of the History and Practical Application of Hydrogen Peroxide in Surgical Affections"..... 84
Cyrus Edson, M. D., Health Commissioner, Board of Health, N. Y., "The Therapeutics of Glycozone, Composition and Characteristics"..... 11
Cyrus Edson, M. D., of New York, "Hydrogen Peroxide in Contagious Diseases —Cholera, Yellow Fever, Typhus, Typhoid Fever"..... 43
H. Endemann, Ph. D., Chemist, "The Real Value of the Medicinal Peroxide of Hydrogen Preparations Found in the Market"..... 1
Paul Gibier, M. D., of New York, "Peroxide of Hydrogen and Ozone; Their Antiseptic Properties"..... 73
Egbert H. Grandin, M. D., of New York, "Peroxide of Hydrogen in Gynecology and in Obstetrics"..... 79
N. H. Haight, M. D., of Oakland, Cal., "Peroxide of Hydrogen as a Local Application in Rhus Tox Poisoning"..... 102
George B. Hope, M. D., of New York, "Some Clinical Features of Diphtheria, and the Treatment by Peroxide of Hydrogen"..... 65
Walter B. Johnson, M. D., of Paterson, N. J., "Peroxide of Hydrogen and Its Use in Ear Diseases"..... 108
George W. Kaan, M. D., of Boston, Mass., "Peroxide of Hydrogen as a Deodorizer in Cancer of the Uterus"..... 101
L. D. Kastenbine, A. M., M. D., of Louisville, Ky., "Hydrogen Dioxide— H_2O_2"..... 154
James S. Kennedy, M. D., of Chambersburg, Pa., "Scarlet Fever"..... 173
R. M. Kirley, Superintendent Female Hospital of St. Louis, "Tubercular Adenitis of the Neck"..... 168
Percival Lantz, M. D., of Alaska, W. Va., "Diphtheria; a False Membrane Expelled; Recovery"..... 144
John A. Larrabee, M. D., of Louisville, Ky., "Some Practical Points in Therapeutics"..... 91
Elmer Lee, A. M., M. D., of Chicago, Ill., "The Treatment of Typhoid Fever" 39
Elmer Lee, A. M., M. D., of Chicago, Ill., "Cholera; Prevention and Treatment" 160
F. P. Lefferts, M. D., of Belvidere, N. J., "Pelvic Peritonitis with Resulting Abscess"..... 178
H. E. Lewis, M. D., of Burlington, Vt., "The Successful Treatment of Riggs' Disease"..... 180
A. Livezey, M. D., of Yardley, Pa., "Peroxide of Hydrogen,"..... 76

I. N. Love, M. D., of St. Louis, Mo., "Diphtheria, Local Treatment,"..... 97
Thomas H. Manley, M. D., of New York, "Some of the Uses of Peroxide of Hydrogen in General Surgery"..... 110
Thomas H. Manley, M. D., of New York, "Surgical Measures of Relief in Stenosis of the Upper Air Passages"..... 113
Joseph M. Matthews, M. D., of Louisville, Ky., "Abstract from a Treatise on Diseases of the Rectum, Anus and Sigmoid Flexure"..... 110
Joseph M. Matthews, M. D., of Louisville, Ky., "The Etiology, Diagnosis and Treatment of Ulceration of the Rectum"..... 141
Medical Fortnightly, (editorial), St. Louis, Mo., "Peroxide of Hydrogen in Conjunctivitis"..... 154
Robert T. Morris, A. M., M. D., of New York, "The Necessary Peroxide of Hydrogen,"..... 72
Robert T. Morris, A. M., M. D., of New York, "Appendicitis"..... 117
W. S. Mullins, M. D., of Henderson, Ky., "Peroxide of Hydrogen in Diseases of the Mucous and Serous Membranes"..... 88
New York Medical Record, (editorial), New York, "Medicinal Use of Hydrogen Peroxide"..... 70
Charles P. Nobles, M. D., of Philadelphia, Pa., "The Peroxide of Hydrogen—Its Uses in Abdominal Surgery"..... 83
Northwestern Medical Journal, (editorial), Minneapolis, Minn., "Peroxide of Hydrogen in the Treatment of Diphtheria"..... 95
Oliver D. Nostrand, M. D., of Cincinnati, O., "Glycozone in the Treatment of Gastric Trouble"..... 107
Frank S. Parsons, M. D., of Philadelphia, Pa., "A Practical Theory and Treatment of Pulmonary Tuberculosis," (abstract)..... 179
C. E. Perkins, M. D., of Sandusky, O., "Retained Nasal Secretion or Syphilitic Rhinitis"..... 103
A. M. Phelps, M. D., of New York, "The Plaster of Paris, Wood, Aluminum, Paper, Leather and Steel Spinal Supports,"..... 181
A. M. Phelps, M. D., of New York, "Etiology of the Various Deformities of Hip-Joint Disease"..... 127
G. W. Pickerill, M. D., of Indianapolis, Ind., "Peroxide of Hydrogen, (Medicinal)"..... 152
George H. Pierce, M. D., of Brooklyn, N. Y., "The Peroxide of Hydrogen (Medicinal); an Indispensable Wound Sterilizer"..... 106
David Phillips, M. D., of New York, "Hydrogen Peroxide in Diphtheria".... 75
C. A. Phillips, M. D., of Boston, Mass., "Extract from Paper on 'Adjuvants or Aids to Gynæcology—Neither Medical nor Surgical'"..... 87
Practice, (editorial), Richmond, Va., "Sinus Treated with Peroxide of Hydrogen" 81
Clarence C. Rice, M. D., of New York, "Fracture of the Septum Narium—Irritative Congestion of the Turbinates",..... 145

Philippe Ricord, M. D., of Newark, N. J., "Peroxide of Hydrogen for the Relief of Bites from Venomous Insects"..... 71
Alexander Rixa, M. D., of New York, "New Therapeutics in Hay Fever"...176
William Roberts, Hospital Steward, U. S. A., of Plattsburgh Barracks, N. Y., "The Value of Peroxide of Hydrogen in the Treatment of Chronic Gonorrhœa, Illustrated by a Case".....100
L. C. Schutt, M. D., of Toledo, O., "Peroxide of Hydrogen".....112
S. H. Sherman, M. D., of Boston, Mass., "Treatment of Diphtheria".....104
John V. Shoemaker, M. D., of Philadelphia, Pa., "Peroxide of Hydrogen, Materia Medica, and Therapeutics"..... 88
J. Lewis Smith, M. D., of N. Y., "Recent Investigations Relating to the Prevention of Diphtheria and Scarlet Fever"..... 96
E. R. Squibb, M. D., of Brooklyn, N. Y., "On the Medical Uses of Hydrogen Peroxide"..... 68
Douglas H. Stewart, M. D., of New York, "A Glance at the Management of Capillary Bronchitis in Infants".....186
John J. Sullivan, M. D., of New York, "Peroxide of Hydrogen in the Treatment of Gonorrhœa—With Report of Case".....125
A. S. Tuckler, '92, C. M. C., S. F., of San Francisco, Cal., "Wax in the Ears" 91
Wm. F. Waugh, M. D., of Chicago, Ill., "Scarlatinal Diphtheria"..... 82
F. H. Wiggin, M. D., of New York, "Peroxide of Hydrogen in Typhoid Fever" 92
F. H. Wiggin, M. D., of New York, "Intestinal Obstructions. Diagnosis and Treatment".....111
Walter S. Wells, M. D., of New York, "Chronic Cervical Endometritis.—Osmotic Treatment".....163
W. C. Wile, A. M., M. D., LL. D., of Danbury, Conn., "Hydrozone".....153
W. C. Wile, A. M., M. D., LL. D., of Danbury, Conn., "Local Treatment of Uterine and Vaginal Diseases".....167
Robert T. Wilson, M. D., of Baltimore, Md., "Some Notes on the Value of Peroxide of Hydrogen"..... 97
C. M. Woodward, Surg.-General M. S. T., of Tecumseh, Mich., Medical Department Surgeon-General's Office".....106
Willard Parker Worster, M. D., of New York, "The Treatment and Cure of Chancre with Peroxide of Hydrogen (Medicinal).....149

CONTENTS.

Page.

Abscess of the Vagina—Treatment... 61
Acne—Treatment..... 64
Action of Peroxide of Hydrogen and Hydrozone upon Animal Cells and Vegetable Cells..... 6
Action of Charles Marchand's Peroxide of Hydrogen and Hydrozone upon Open Diseased Surfaces..... 7
Alveolar Abscess and Abscess of the Inferior Maxilla—Treatment..... 52
Analysis of the Different Brands of Peroxide of Hydrogen (medicinal) Found on the Market and their Respective Keeping Properties, by Dr. H. Endemann, Published by Philadelphia *Medical Times and Register* 1
See also article headed "Hydrogen Dioxide, H_2O_2, by Prof. L. D. Kastenbine, published by the Lousiville *Medical Monthly*.....154
Anthrax—Carbuncle—Treatment..... 56
Antiseptics—Comparative Tests..... 8
Asthma—Treatment..... 21
Bladder—(Inflammatory Diseases of the)..... 62
Bronchitis—Treatment..... 22
See also article by Dr. Douglas H. Stewart.....186
Cancerous Sores—Treatment..... 57
Carbolic Acid–Its Dangers–(foot note), 9
Catarrh of the Nose and Catarrh of the Throat –Treatment..... 14
See also, articles by Dr. Clarence C. Rice.....145
Dr. Alex. Rixa.....176
Catarrh of the Stomach, or Gastritis, (Chronic or Recent)—Treatment.. 35
See also article headed: Diseases of the Alimentary Canal, by Dr. J. O. De Courcy.....156

Page.

Caution..... 31
Cholera—Its Prevention and Treatment, by Elmer Lee, A. M., M. D.,160
See also, article by Dr. Cyrus Edson, 43
Chronic and Acute Ulcers–Open Sores—Abscesses—Carbuncles—Cancerous Sores, Etc.—General Directions, 54
See also, articles headed: Treatment of Acute and Chronic Ulcers, by Dr. J. O. De Courcy.....147
The Necessary Peroxide of Hydrogen, by Dr. Robert T. Morris..... 72
H_2O_2; an Indispensable Wound Sterilizer, by Dr. Geo. H. Pierce...106
Thiersch's Grafts in Extensive Destruction of Soft Parts about Large Joints, by Dr. Henry W. Coe.....169
Conjunctivitis (Catarrhal) or Ophthalmia—Causes—Treatment..... 47
Conjunctivitis (Purulent)—Ophthalmia Neonatorum, or Ophthalmia in Children—Treatment..... 49
See also articles headed: The Necessary Peroxide of Hydrogen, by Dr. Robert T. Morris..... 72
Consumption—Phthisis—Tuberculosis of the Lungs—Causes—Treatment.. 26
See also: A Practical Theory and Treatment of Pulmonary Tuberculosis, by Dr. Frank S. Parsons. Abstract from the Philadelphia *Medical Times and Register*.....179
Contagious Diseases of the Alimentary Canal..... 38
See also articles by: Dr. Cyrus Edson, 43
Dr. Elmer Lee.....39–160
Dr. Jas. Osbourn De Courcy.....156
Croup, Membranous Croup—Causes and Treatment..... 23
Cystitis (Purulent)—Treatment..... 62

CONTENTS (Continued).

Page.

Destructive Action of Ozone upon the Virus..... 3
Diphtheria—Causes—Treatment..... 28
See also articles by: Dr. G. F. Adams, 82
Dr. Edward J. Bernstein..... 81
Dr. Geo. B. Hope..... 65
Dr. Percival Lantz.....144
Dr. I. N. Love..... 97
Dr. J. Mount Bleyer..... 67
Dr. W. S. Mullins..... 88
Dr. David Phillips..... 75
Dr. S. H. Sherman.....104
Dr. J. Lewis Smith..... 96
Dr. E. R. Squibb..... 68
Dr. Wm. F. Waugh..... 82
Directions for Using Chas. Marchand's Hand Atomizer and Ozonizer..... 29
Diseases of the Stomach..... 34
Diseases Caused by Germs or Microbes, 2
Dyspepsia—Predisposing Causes—Treatment..... 34
Ear (Inflammatory and Purulent Diseases of the)—Treatment..... 50
See also article by Dr. Walter B. Johnson.....108
Eczema—Treatment..... 64
Erysipelas—Treatment..... 64
Empyema—Wound Closure After the Empyema Operation, by Dr. Chas. W. Aitkin..... 98
An Interesting Case of Empyema, by Dr. H. F. Brownlee..... 99
Eye (Inflammatory and Contagious Diseases of the)—Treatment..... 47
Fistula-in-Ano—Treatment..... 58
See also article headed: The Operative Treatment of Fistula-in-Ano, by Dr. Lewis H. Adler, Jr.....109
Fistula (Recto-Vaginal)—Treatment.. 62
Gangrenous Sores—Treatment..... 57
Glycozone—Important Information.. 10

Page.

Gonorrhœa—Causes and Treatment.. 59
See also articles by: Dr. John J. Sullivan.....125
Dr. R. Charest..... 69
Wm. Roberts.....100
Granulated Eyelids—Treatment..... 49
Hand Atomizer and Ozonizer (Illustrations)..... 32–33
Hay-Fever—Rose Cold—Coryza—Causes—Treatment..... 17
See also article headed: New Therapeutics in Hay Fever, by Dr. Alexander Rixa.....176
Hydrogen Peroxide in Contagious Diseases, by Dr. Cyrus Edson..... 43
Hydrozone in Dental Surgery (Uses of) 51
Important Information on Peroxide of Hydrogen and Hydrozone..... 5
Indigestion—Vomiting in Pregnancy—Treatment..... 37
Inflammatory and Infectious Diseases of the Genito-Urinary Organs—Gonorrhœa—Gleet—Urethritis, etc... 19
See also articles by: Dr. Egbert H. Grandin..... 79
Dr. W. S. Mullins..... 88
Dr. C. A. Phillips..... 87
Dr. R. Charest..... 69
Wm. Roberts.....100
Inflammatory Diseases of the Intestines—Chronic Constipation—Diarrhœa—Treatment..... 37
Influenza—La Grippe—Treatment... 20
Itch—Treatment..... 64
Laceration—Inflammation and Ulceration of the Gums — Stomatitis — Treatment..... 53
Laryngitis—Treatment..... 23
Leucorrhœa..... 60
List of Contributors to Medical Literature..... v

CONTENTS (Continued).

Page.

Necrosis and Caries of the Teeth—Treatment 53
Ophthalmia in Children—Treatment, 49
Ozœna, or Putrid Catarrh of the Nose—Treatment 17
Phagedenic Chancre of the Rectum—Treatment 58
Pharyngitis—Treatment 23
Piles (External)—Treatment 58
Piles (Internal)—Treatment 59
Relations of Bacteria to Disease 1
Rigg's Disease or Loosening of the Teeth 54
See also, The Successful Treatment of Rigg's Disease by Dr. H. E. Lewis 180
Scarlet Fever—Causes—Treatment ... 29
See also article headed Scarlet Fever, by Dr. Jas. S. Kennedy 173
Scarlatinal Diphtheria, by Dr. Wm. F. Waugh 82
Skin Diseases—Eczema—Acne—Itch—Frysipelas, etc.—Treatment 64
Sore Throat — Angina — Tonsilitis — Quinsy, etc.—Treatment 28
The Therapeutics of Glycozone, by Dr. Cyrus Edson 11
Treatment of Typhoid Fever, by Dr. Elmer Lee 39

Page.

Throat, (Inflammatory Diseases of the) 28
Typhoid Fever — Typhus — Yellow Fever—Cholera Infantum—Asiatic Cholera—Treatment 38
See also articles by: Dr. M. A. Clark, 150
Dr. Cyrus Edson 43
Dr. Elmer Lee 160
Dr. F. H. Wiggin 92–111
Dr. Jas. Osbourn De Courcy 156
The Rational Therapeutics of Cholera Infantum by Dr. G. Blech 185
Ulcer of the Stomach—Treatment 36
Ulceration of the Rectum—Treatment, 57
See also article by Dr. J. M. Matthews 141
Vaginitis—Metritis — Endometritis — Ulceration of the Cervix-Uteri—Treatment 61
See also articles by: Dr. Egbert H. Grandin 79
Dr. Walter S. Wells 163
Dr. Herman L. Collyer 126
Dr. W. C. Wile 167
Whites, Leucorrhœa, etc.—Treatment 60
Whooping Cough—Causes and Treatment 24
Women's Weaknesses 60
Yellow Fever—Causes—Treatment ... 46

RELATIONS

OF

BACTERIA TO DISEASE.

THE branch of science named Bacteriology was opened to the medical profession by the classical researches of Prof. Pasteur in the settlement of the question of spontaneous generation, and in his subsequent studies of the process of fermentation. With the investigations of that distinguished French *savant* began our first positive knowledge of the definite relations of bacteria to disease in the animal kingdom.

Prof. Robert Koch, of Berlin, has contributed widely by his experiments to the progress in knowledge of etiology of the infectious and contagious diseases.

Owing to the methods which he has devised in order to practically and easily isolate different species of bacteria, we are now enabled to follow the phases of their development in pure cultures under varying circumstances.

Microscopical examinations show that, during the various stages of their life, bacteria presents different forms and dimensions; but it is also demonstrated that one species of bacteria, placed under the same circumstances, always present the same forms, and produce the same effects.

Bacteria are principally constituted by an albuminoid substance, called microproteine.

The pathogenic bacteria only are of the greatest interest to the physician, and, according to the definition given by Prof. Koch, a micro-organism is pathogenic when it presents the following characteristics:

First.—It must be found in the excretions, secretions, or tissues of the animal suffering or dead from the disease.

Second.—The micro-organism must be cultivated out from the organism.

Third.—A pure culture inoculated in an animal should reproduce the disease.

Fourth.—The bacteria should be found in the humors or tissues of the animal after death.

Pathogenic bacteria are differently affected in their infective power by the soil in which they grow; some of them have a limited or local action, and others produce the infection of the whole system with a prodigious rapidity.

These facts have been demonstrated from microscopical examination; for example the autopsy shows that the blood of a patient who died from Diphtheria is invaded with a large number of microbes called micrococci, the same microbes being detected also in the diphtheritic membrane, which was at first the seat of this infectious disease.

The microscopical examination of the blood of a patient who died from Anthrax shows the presence of the bacillus Anthracis, which was at first found only in the excretions of pus coming from the infected surface.

Consequently, the contagion is not always immediate. During this period of localization of the disease, the microbian element should be destroyed by a proper medication, in order to prevent its propagation through the whole system.

Micro-organisms or germs in the atmosphere have been shown by Ehrenburg to exist in masses or clouds; so that, in a room containing infection, a portion of the air may be loaded, while other portions are nearly free, which would seem to explain cases of escape from septic or zymotic influences.

It is owing to the presence of these micro-organisms, that Profs. Pasteur, Koch, Tyndall, and others have been able to establish the germ theory of disease.

List of Diseases caused by Germs or Microbes.—**Diphtheria, Scarlet Fever, Sore Throat, Catarrh of the Nose, Ozœna, Hay Fever, La Grippe, Bronchitis, Laryngitis, Pharyngitis Asthma, Whooping Cough, Pneumonia, Consumption.—Infectious Diseases of the Genito-Urinary Organs: Gonorrhœa, Urethritis, etc.—Inflammatory and Contagious Diseases of the Alimentary Canal: Typhoid Fever, Typhus, Cholera, Yellow Fever.—Diseases of the Stomach: Dyspepsia, Catarrh of the Stomach, Ulcer of the Stomach, etc.—Open Sores: Abscesses, Carbuncles, Ulcers, Ulceration of the Gums, Rigg's Disease, Stomatitis, etc.—Women's Weaknesses: Whites, Leucorrhœa,—Skin Diseases: Eczema, Acne.—Inflammatory and Contagious Diseases of the Eyes: Catarrhal Conjunctivitis, or Ophthalmia, Purulent Conjunctivitis, Ophthalmia Neonatorum, or Ophthalmia in Children, Granulated Eye Lids.—Diseases of the Bladder: Purulent Cystitis, etc.**

It is no wonder, after becoming acquainted with such facts as the above, that scientists have studied with such care the properties of antiseptics in order to destroy the germs.

Destructive Action of Ozone upon the Virus.—A fact known by bacteriologists and chemists is that: All virus is albuminoid, whether propagative or not; it is destroyed, or by coagulation rendered inert, by the oxidizing action of "Ozone," just as it is by contact with corrosive sublimate and other antiseptics.

Then, it is evident that if some substance could be produced which would oxidize or destroy these micro-organisms, so as to change their infectious character, a great benefit would result, providing this destroyer of germs would have no injurious consequences upon the life of animals.

Such a substance we have in ozone, O_3; or condensed oxygen, O_2+O. It is nature's disinfectant.

Houzeau found the air of the country at the height of six feet above the ground to contain $\frac{1}{450000}$ of its weight of ozone, or $\frac{1}{700000}$ of its volume.

This very small quantity of ozone is sufficient, owing to its wonderful oxidizing power, to destroy germs.

"Ozone" is a normal constituent of fresh air; its proportion varies with temperature and electric conditions of the atmosphere.

Billard, Wolf, Boeckel, and Strambes agreed that the cholera, when it raged in Strasbourg, Berlin, and Milan, coincided with the absence of ozone in the atmosphere, and that ozone reappeared at the end of the epidemy.

These observations are in perfect accord with those obtained by Dr. F. H. Hammond. Dr. Moffatt, Romain Vigouroux, Uhle, and numerous other scientists also attribute the prevalence at time of cholera, malarious fever, to the absence of ozone in the air.

Is it due to an excessive production of miasms relatively to the normal proportion of ozone, or it is because "Ozone" is in deficiency to destroy these germs?

No one could answer this question, but the positive fact is that: "If Ozone is in excess, there is no epidemy."

The wonderful antiseptic value of "Ozone" has attracted the attention of all scientists, and a number of chemist have devised different methods of its production; but no one of these processes could be used to manufacture ozone industrially.

Hydrozone and Peroxide of Hydrogen, H_2O_2 are always on a strain to break up into water and nascent oxygen, or ozone.

The fact that Hydrozone and Peroxide of Hydrogen (medicinal) generate nascent oxygen (near to the condition of Ozone), when brought into contact with any open diseased surfaces is proved by experiments which I have made in order to establish the comparative chemical reactions between these wonderful bactericides, and I now submit to the profession the results which I have obtained.

COMPARATIVE CHEMICAL REACTIONS BETWEEN HYDROZONE, MARCHAND'S PEROXIDE OF HYDROGEN (MEDICINAL), AND OZONE,

Iodide of Potassium Solution in presence of	$H_2 O_2$ Solution and Hydrozone.	Result of reaction:	Potash and Iodine.
	Ozone.	Result of reaction:	Potash and Iodine.
Permanganate of Potash Purple Solution in presence of	$H_2 O_2$ Acidulated Solution and Hydrozone.	Result of reaction:	Immediate discoloration. Escaping of Oxygen Gas and formation of brown Oxide of Manganese.
	Ozone.	$K_2 Mn_2 O_8 + 4 H_2^{-} O_2 = 2 KHO + Mn_2 H_6 O_6 + 4 O_2$	
Peroxide of Iron Salt Solution and Ferricyanide of Potassium Solution mixed together in presence of	$H_2 O_2$ Solution and Hydrozone.	Result of reaction.	Ferricyanide is transformed into Ferrocyanide of Potassium, giving a blue coloration.
	Ozone.	Result of reaction.	Same result.
Tincture of Indigo in Presence of	$H_2 O_2$ Solution and Hydrozone.	Result of reaction.	Decoloration.
	Ozone.	Result of reaction.	Decoloration.
Nitrous Acid in presence of	$H_2 O_2$ Solution and Hydrozone.	Result of reaction.	Formation of Nitric Acid.
	Ozone.	Result of reaction.	Same result.
Arsenious Acid in presence of	$H_2 O_2$ Solution and Hydrozone.	Result of reaction.	Formation of Arsenic Acid.
	Ozone.	Result of reaction.	Same result.
Tincture of Guaiacum mixed with either Blood or extract of Malt.	$H_2 O_2$ Solution and Hydrozone.	Result of reaction.	Blue coloration, with effervescence and coagulation of albumen.
	Ozone.	Result of reaction.	Same reaction.
Organic substances such as Cotton, Woolen, Silk, Feathers, Hair, Bones, Ivory, etc., in presence of	$H_2 O_2$ Alkaline Solution and Hydrozone.	Result of reaction.	Oxidizing and Bleaching Action.
	Ozone.		Same result but slower action.

IMPORTANT INFORMATION ON PEROXIDE OF HYDROGEN AND HYDROZONE.

Pure anhydrous Peroxide of Hydrogen yields four hundred and seventy-five volumes of oxygen; that is, it gives off four hundred and seventy-five times its own volume of oxygen. It is a very unstable liquid compound, having by itself a slight acid reaction to the litmus paper. Its decomposition into water and oxygen takes place under the most enigmatical influences. Hence it is not an article of commerce. Charles Marchand's Peroxide of Hydrogen (medicinal) is really a $3\frac{1}{8}$ per cent. solution of the anhydrous peroxide in water; 1 per cent solution yields 4.75 times its own volume of oxygen. Consequently, the Peroxide of Hydrogen (medicinal) which I manufacture yields "$3\frac{1}{8}$ times 4.75" its own volume of oxygen, viz., a trifle more than fifteen times its own volume of oxygen gas. It is called a 15-volume solution.

Dr. L. D. Kastenbine, Professor of Chemistry, Urinology, and Medical Jurisprudence, Louisville Medical College; Professor of Chemistry, Louisville College of Pharmacy, writes in his report headed Hydrogen Dioxide H_2O_2, published by *The Louisville Medical Monthly* for July, 1894, as follows:

"Of the various brands of commercial dioxides I have examined, I find Marchand's to be the one which yields the largest amount of available oxygen under all conditions of exposure, and the one which contains the minimum percentage of free acid. All the marketable articles I have seen are free from barium compounds, but the majority do not come up to the 15 volume standard, but are 6, 8, 10 and 12 volume solutions. * * * *

The solution I find containing the greatest percentage of available oxygen, is the preparation known as Marchand's, which, when perfectly fresh, is about a fifteen volume solution." (See page 154.)

Hydrozone, having twice the strength of my medicinal Peroxide of Hydrogen, is much more effective as a bactericide and healing agent. One ounce of Hydrozone is equivalent to two ounces of Marchand's Peroxide of Hydrogen (medicinal).

Both my medicinal Peroxide of Hydrogen and Hydrozone contain traces of acid which have no injurious action whatever upon diseased tissues, neither upon healthy animal cells.

In no instances should these remedies be made alkaline or even neutral by the addition of an alkali, as their power is considerably reduced when neutralized.

Bacteriological experiments made upon cultures of pathogenic germs have demonstrated that:

One cubic centimetre of my medicinal $H_2 O_2$, which contains traces of acid, is equivalent for its bactericide power to:

Two cubic centimetres of the same preparation after it has been made neutral by the addition of either lime water, Bicarbonate of Soda, Ammonia, etc.

And to three cubic centimetres of the same preparation after it has been made slightly alkaline by the addition of a small excess of alkali.

Same results are obtained with Hydrozone.

Marchand's Peroxide of Hydrogen (medicinal) and Hydrozone are both harmless remedies. They are uniform in strength, purity and stability, being kept in a cool place, such as a cool cellar, they retain their germicide power for any length of time.

My medicinal Peroxide of Hydrogen freezes at 8° to 10° F. Hydrozone freezes at about 5° F. When such is the case thaw them out slowly at a temperature not exceeding 65° to 70° F., so as to prevent deterioration.

Action of Charles Marchand's Peroxide of Hydrogen (medicinal) upon Animal Cells and Vegetable Cells.—See report by Dr. Paul Gibier, page 73; also report by Dr. S. Potts Eagleton, page 84. Experiments made by Bacteriologists prove beyond doubt that:

1st. Charles Marchand's Peroxide of Hydrogen (medicinal) has no injurious effect upon animal cells.

2d. It has a very energetic, destructive action upon vegetable cells—microbes.

3d. It has no toxic properties; five cubic centimetres injected beneath the skin of a guinea pig does not produce any serious result, and also harmless when administered internally.

4th. It is a stimulant to granulating tissues.

5th. It has no corrosive action whatever upon the healthy mucous membranes when applied to the treatment of diseases caused by germs, such as Diphtheria, Scarlet Fever, Whooping Cough, etc.

6th. It is the pus destroyer "par excellence." See article headed "The Necessary Peroxide of Hydrogen," by Dr. Robert T. Morris, page 72.

The action of "Hydrozone" upon germs is similar to the action of Charles Marchand's Peroxide of Hydrogen (medicinal) but having twice the strength, it is much more effective as a bactericide and healing agent.

Action of Charles Marchand's Peroxide of Hydrogen and Hydrozone upon Open Diseased Surfaces.—When Peroxide of Hydrogen (medicinal) or Hydrozone are brought into contact with any open diseased surface, either of the skin or of the mucuous membranes, their decomposition takes place immediately.

Nascent oxygen (near to the condition of ozone) is set free, the albuminoid element of the unhealthy secretions is coagulated, the pus corpuscles are destroyed and their reproduction is checked by the fact that the Bacteria as well as their spores are annihilated.*

As soon as the nascent oxygen has accomplished its cleansing effects upon the infected surface, it is readily transformed into ordinary oxygen, owing to its instability.

It is of great importance to notice that water, charged with fifteen times its own volume of oxygen gas (formula O) under pressure, has no similar action whatever on the albuminoid substances, as there is no coagulation, and no cleansing effects upon the unhealthy secretions of any open diseased surfaces.

This remark was necessary in order to establish plainly the difference between the therapeutical value of Peroxide of Hydrogen or Hydrozone and the Oxygen or the Compound Oxygen treatments.†

---

* Although Peroxide of Hydrogen as well as Hydrozone have no toxic properties, they should never be injected into the circulation of the blood, on account of their chemical action upon the albumen. Two cubic centimetres of Peroxide of Hydrogen (or one centimetre of Hydrozone) being injected into the femoral vein of a dog are sufficient to kill the animal almost instantly, when the free egress of Oxygen gas which is generated in the circulation, is prevented by external pressure of the vein.

† Concerning the so-called "Compound Oxygen treatment," I shall refer the profession to a very elaborate report on:

"The Management of Pulmonary Diseases," by Karl von Ruck, B. S., M. D., Director of the Winyah Sanitarium for Diseases of the Throat and Lungs, Ashville, N. C., 1889. On pages 8 and 9 of this publication, the author writes as follows:

"*Inhalation of Oxygen.*—Undoubtedly some benefit has been derived from such inhalations in anæmia and digestive derangements, also in certain forms of dyspnœa I have seen patients made much more comfortable after each inhalation, especially when a small quantity of nitrous acid was added. I have also seen an occasional but undoubted increase in the number of red blood-corpuscles under its administration, both in essential and symptomatic anæmia, especially when iron preparations, which alone had proved inefficacious, could be administered at the same time. Its range of usefulness in consumption is secondary altogether to many other means, and it is only occasionally that anything more than temporary relief can thereby be given, and, no matter how plausible the theory as to its influence upon nutrition, practical experience shows that its use is always experimental, and frequently without result, the same as is the case in its employment in other diseases. Its mixture with nitrous oxide, in the form of the so-called 'compound oxygen,' by the temporary stimulating or intoxicating effect of the laughing gas, has no advantage whatever, except in dyspnœa, but it makes the patients who become the victims of charlatans feel that 'something powerful' is present in such inhalations, and induces them to believe in it the more readily. This 'compound oxygen cure for consumption' still flourishes in many localities, the same as do the quack remedies for the same object upon the shelves and counters of our druggists, and I have no doubt the venders of such with their advertisements, are as injurious parasites upon the consumptives as are the tubercle bacilli themselves; and while we must ac-

Ch. Marchand's Peroxide of Hydrogen (medicinal) as well as Hydrozone, are now recognized by leading physicians (see the opinions of the medical profession on pages 65 to 160, as being the most powerful and reliable bactericides known. I now beg to submit to the profession the results of comparative tests which I have made, in order to demonstrate experimentally the difference between the bactericide potency of the following chemicals, acting upon a diphtheritic membrane for the destruction of microbes present in half a gramme of the said membrane.

Mixture or solution containing 3½ per cent. of the following chemicals:

QUANTITY OF THE MIXTURE OR SOLUTION REQUIRED TO ANNIHILATE MICROBES.

	Cubic Centimetres
Glycozone	1.00
Biniodine of mercury	1.00
Hydrozone (harmless)	1.00
Biniodine of silver	1.33
Marchand's Peroxide of Hydrogen, medicinal (**harmless**)	2.00
Bichloride of mercury	3.00
Nitrate of silver	5.00
Hypochlorite of lime	9.00
Chlorine gas (aqueous solution)	10.00
Iodine	10.00
Bromine	24.00
Iodoform (when fresh)	28.00
Salicylic acid	40.00
Muriatic acid	100.00
Carbolic acid	128.00
Permanganate of potash	140.00
Chlorate of potash,	158.00
Alum	180.00
Tannin	190.00
Common salt	196.00
Sulphide of calcium	201.00
Boracic acid	300.00
Sulphurous acid	325.00
Lactic acid	360.00
Chloride of iron	371.00

knowledge that our efforts in phthiso-therapy against the latter have thus far been unavailing, many lives could undoubtedly be saved if the former could be extinguished by the enactment of wise laws which would oblige them to derive their means of livelihood otherwise than by trifling with human life."

Thymol, eucalyptus, bicarbonate of soda, lime-water, turpentine, have no action at all upon the microbes of a diphtheritic membrane when they are developed; but they may have to a certain extent, a preventive action upon the development of the spores.

The permanganate of potash, hypochlorite of lime, bichloride of mercury, the aqueous solution of chlorine gas, carbolic acid, nitrate of silver, etc., destroy the microbes; but, being poisonous, they have the most dangerous effect upon the patient's life.

It is worthy of note that my medicinal preparations, viz., Glycozone, Peroxide of Hydrogen (medicinal) and Hydrozone are absolutely harmless. All other chemicals have toxicant, corrosive, or poisonous properties, as is proved by chemical and clinical tests; and their use is, in many instances, more dangerous than the disease itself.

By referring to the comparative tests published on page 8, it is easy to notice that Hydrozone is twice as strong as Marchand's Peroxide of Hydrogen (medicinal), three times as strong as bichloride of mercury, 5 times as strong as nitrate of silver, 10 times as strong as iodine, 28 times as strong as iodoform, 40 times as strong as salicylic acid, 128 times as strong as carbolic acid.*

---

* *The Dangers of Carbolic Acid.*—The following experiments which I have made prove beyond doubt the dangers of applying carbolic acid in the treatment of suppurative diseases.

Six dogs were submitted to the action of this corrosive antiseptic in the following manner:

Two or three square inches of hair on the leg of each animal upon which the experimentation took place, was closely shaved.

Morning and evening an application, from 8 to 10 drops (three per cent. solution) of carbolic acid was made upon these prepared surfaces and continued for ten days.

One hour or so after each application the surface was dry, owing to the evaporation of water, and then, as an immediate consequence, it was covered by a small quantity of pure, concentrated carbolic acid, of which the corrosive properties are well known.

At the expiration of said time two of these dogs were sick, each one having an ulcer on the prepared surface of the leg, which was due to the repeated application and evaporation of the three per cent. solution of carbolic acid; and three days later each one of the four other dogs had an ulcer of the same nature, which was produced from the same cause.

These four dogs were then submitted to treatment by my Peroxide of Hydrogen, which in four weeks thoroughly cured them.

The application of the three per cent. solution of carbolic acid on the ulcers of the two other dogs was again continued, and on the fiftieth and sixty-second day, respectively, both animals expired from blood-poisoning. The autopsy showed that the blood of these animals was invaded by the bacteria of Davaine, which was detected by a microscopical examination.

GLYCOZONE.

IMPORTANT IMFORMATION.

Glycozone is a stable compound resulting from the chemical reaction which takes place when c. p. glycerine is submitted under special conditions, to the action of fifteen times its own volume of ozone, under normal atmospheric pressure at a temperature of O°C. Its density is 1260 grammes.

The presence of water (and other foreign substances) in the glycerine, changes the nature of this reaction, so that instead of producing glycozone, we obtain formic acid, and other secondary products having deleterious effects upon the animal cells.

Glycozone being hydroscopic, must be tightly corked, so as to avoid being deteriorated by the moisture contained in the atmosphere.

Although Glycozone absorbs water readily, it does not deteriorate when kept at a temperature below 110 degrees F. as long as it retains its proper anhydrous condition.

The therapeutic properties of Glycozone and Marchand's Peroxide of Hydrogen (medicinal) or Hydrozone, differ in the following particulars:

Peroxide of Hydrogen (medicinal) as well as Hydrozone, instantly destroy the morbid element of diseased surfaces of the skin or of the mucous membrane with which it comes in contact, leaving the tissues beneath in a healthy condition.

Glycozone acts more slowly, but not less certain as a stimulant to healthy granulations. Its healing action upon diseased mucous membrane is powerful and harmless in the treatment of inflammatory diseases of the stomach. In such cases it gives an immediate relief to the patient.

Caution.—Glycozone is a peculiar chemical compound, and not a mixture of Peroxide of Hydrogen (medicinal) with glycerine.

These two liquids when mixed do not form a stable product, but develop substances which have injurious effects upon animal cells.

Such a mixture when freshly made has no healing properties similar to Glycozone. On the contrary, Glycozone is stable, harmless and always effective.

THE THERAPEUTICS OF GLYCOZONE.

COMPOSITION AND CHARACTERISTICS.

By CYRUS EDSON, M. D.

Health Commissioner, Board of Health, New York City.

(Published by the *Times and Register*, Philadelphia, Pa., April 22, 1893.)

Glycozone is defined by its discoverer, Mr. Ch. Marchand, to be a stable compound, resulting from the chemical reaction that takes place when c. p. glycerine is submitted, under certain conditions, to the action of fifteen times its own volume of ozone, under normal atmospheric pressure at O°C.

The necessity of using c. p. glycerine is imperative, as the presence of water or other foreign matter in glycerine causes the production in the resulting compound of formic acid, glyceric acid, and other secondary products, that have a harmful effect upon animal tissues.

Glycozone has a pleasant, sweetish taste. Being hydroscopic it must be kept in tightly corked bottles, and as long as it is kept in this condition, it does not deteriorate at a temperature of even 110 degrees F.

Antagonists and Incompatibles.—Glycozone, like Peroxide of Hydrogen is a powerful oxidizing agent, although its action is not as rapid or as energetic in this respect as the latter compound. Consequently, we can not safely prescribe it combined with any other drugs or chemical substances. Contact with metallic utensils decompose it. We must therefore use glass or hard rubber vessels and syringes when administering it.

Physiological Action.—When taken into the mouth and stomach glycozone causes a feeling of warmth. It excites a flow of saliva and stimulates the gastric secretions. Being hydroscopic it attracts to itself water from the surrounding tissues but not with sufficient power to effect harm. In very large doses one or two ounces, it causes a feeling of distress in the epigastrium and is followed by loose, copious, watery stools, which are accompanied by severe cramps.

No effect is noted on the kidneys, the liver or the heart. Glycozone is undoubtedly slowly decomposed in the stomach, ozone being liberated and the glycerine uniting with the water from the tissues.

The morbid elements with which it comes in contact probably hasten this decomposition, and in so doing are themselves oxidized and destroyed. The free ozone in the stomach resulting from the decomposition of glycozone aids the digestive process by its presence.

Therapy.—Glycozone is, in the opinion of the writer, the best known agent for the treatment of gastric ulcer. It is also one of the best remedies for the treatment of the stomach, catarrh or chronic alcoholism, and for chronic gastric catarrh from other causes. It is excellent for atonic dyspepsia, and for acid dyspepsia. The writer has seen very gratifying results from its use in these distressing maladies.

In catarrhal and other stomachic diseases except gastric ulcer, the remedy is best administered in one or two teaspoonfuls in a wineglassful of water immediately after meals. In the case of gastric ulcer the dose and dilution should be the same, but it is better to give it when the stomach is empty, an hour or so before meals.

Glycozone has an excellent effect when used internally in cases of diphtheria. For this purpose a tablespoonful of glycozone is given in a wineglassful of water every three hours. As it is perfectly harmless it may be used without apprehension.

The following treatment is excellent in cases of membranous croup: The nose, throat, mouth, pharynx, and larynx should be sprayed copiously every two hours or so with a mixture of one ounce of Marchand's Peroxide of Hydrogen (medicinal), * with four to six ounces of water.

The membranes are readily destroyed, and by using this remedy freely, their reproduction is prevented. Then one teaspoonful of glycozone diluted in a wineglassful of water administered three times a day, prevents any disturbance of the stomach and regulates the bowels.

Remarkable benefit may be derived in the treatment of diseased conditions (ulcerations and chronic inflammation) of the rectum and lower gut, by enemata containing glycozone, and for this purpose nothing excells the following formula:

1 ounce of Glycozone,
12 ounces of lukewarm water.

This should be mixed immediately before using and administered

* Better results will be obtained if Hydrozone is used instead of Peroxide.

with a hard rubber syringe once daily. It is frequently desirable to use a smaller amount than the above mixture. The proportions 1 to 12, however, should be maintained. In cases of fistula-in-ano and of rectal ulcerations low down, an ounce of lukewarm water containing a drachm of glycozone administered once or twice daily soon effects good and in cases of ulcer, pure and simple, may be expected to radically cure the diseased conditions.

External Uses.—After the cleansing of any diseased or suppurating surface by Peroxide of Hydrogen (medicinal), the application of glycozone stimulates healthy action and hastens the cure. For this purpose it has no superior in the entire range of therapeutics. It tends to check the discharge of irritating unwholesome secretions and to prevent the infection of the sore by pathogenic organisms. Its action in this respect is explained by the fact that it is both powerfully antiseptic and stimulant.

Follicular Pharyngitis, chronic coryza, and ulcerative stomatitis are all benefited by frequent applications of glycozone. As an application to ulcerated cervix-uteri and in tumefied conditions of the cervix and uteri it is far superior to pure glycerine.

In these cases, and for the cure of leucorrhœa, the remedy should be applied on small rolls of lint, or absorbent cotton, the vagina having first been thoroughly washed with an injection of Peroxide of Hydrogen one part,* water four parts. This procedure should be repeated twice daily.

* When Hydrozone is substituted to Peroxide, one part of Hydrozone with eight parts of water will be sufficiently strong and better results will be obtained.

GENERAL DIRECTIONS FOR APPLYING

CH. MARCHAND'S PEROXIDE OF HYDROGEN

(MEDICINAL), H_2O_2,

HYDROZONE AND GLYCOZONE,

IN THE TREATMENT OF DISEASES CAUSED BY GERMS.

NOSE.—THROAT AND CHEST DISEASES.—TREATMENT.

CATARRH OF THE NOSE AND CATARRH OF THE THROAT.

Causes.—Micro-organisms, principally of the micrococcus species have been detected by microscopical examinations, by scientific men and by myself, in the mucous discharges from the nostrils of persons afflicted with this disease. Those germs which are the cause of the infection are readily destroyed by Charles Marchand's Peroxide of Hydrogen (medicinal), and still better by Hydrozone and there is no danger for the patient to use these remedies in any quantity, as both are positively harmless.

Treatment.—By means of an atomizer, made of glass and hard rubber, spray the nose and the throat copiously and repeatedly twice or three times every day with a mixture of:

1 tablespoonful Marchand's Peroxide of Hydrogen, (medicinal),
with 4 to 10 tablespoonfuls of water (cold or lukewarm).

Better results will be obtained with a mixture made of:

1 tablespoonful of Hydrozone
with 8 to 20 tablespoonfuls of water (cold or lukewarm)

according to the degree of inflammation in the mucous membranes of the nasal cavities; and, in case of extreme sensitiveness, use even still a larger proportion of water.

NOTE—In the absence of an atomizer, apply the remedy to the nose by sniffing the liquid from the hand through the nostrils repeatedly, and gargle the throat. It is always beneficial to swallow the remedy.

Do not blow the nose too hard, as it might cause a temporary bleeding.

In chronic cases of long standing, especially at the beginning of the treatment, when the tenderness of the mucous membrane is excessive,

it often happens that the patient will feel, during one hour or so after each application of the remedy, a partial obstruction of either one or the other of the nostrils.

This very unpleasant feeling is often accompanied by frequent sneezing, which is due to the tickling sensation produced in the nasal cavities by the presence of a great quantity of minute bubbles of "Ozone," being set free from the decomposition of either Charles Marchand's Peroxide of Hydrogen or Hydrozone coming in contact with the infected surface. The unhealthy secretions are destroyed by "Ozone," and the cleansing of the nostrils is made perfect.

In chronic cases, when the middle ear is affected, deafness is often the consequence of this disease. Then ozonized vapor inhalations should follow immediately the spraying of the nose and the throat, and should be administered by means of Charles Marchand's Hand Atomizer and Ozonizer, with a mixture thoroughly made of:

half Marchand's Peroxide of Hydrogen (medicinal)
and half chemically pure glycerine.

Preferably,

1 tablespoonful of Hydrozone
1 " of water
2 " of pure glycerine.

Renew the mixture every three days. It is important that the above mixtures should be made perfect by shaking the bottle well, otherwise the spray-tube of the apparatus might be clogged on account of the syrupy nature of the glycerine.

A permanent cure may be effected in a very short time.

When chronic Catarrh of the Nose is very tenacious and painful, it is necessary at night, before retiring, to apply a few drops of Glycozone to the nostrils. Sniff it hard, as it will accelerate the cure.

In many cases the incurability of Chronic Catarrh of the Nose is due to partial or complete obstruction of the nasal cavities, caused by some abnormal conditions of growth, differing in their nature.

When such is the case, apply Marchand's Peroxide of Hydrogen, preferably Hydrozone, as heretofore explained, morning and evening. After ten or fifteen days, if the excrescence does not disappear, it will be necessary to have a surgical operation performed for its removal.

After the excrescence has been removed or destroyed by means

of the thermo-cautery, or any other operation (*no caustic should be used, as it will most likely destroy both taste and smell*), an absolute cure is certain if the above treatment is earnestly followed.

The profession well know that the therapeutical agents used for the treatment of this disease have been as follows:

Bichloride of Mercury.—Calomel.—Sulphate of Zinc.—Sulphate of Copper.—Alum.—Nitrate of Silver.—Carbolic Acid.—Salicylic Acid.—Permanganate of Potash.—Borax.—Boracic Acid.—Subnitrate of Bismuth.—Common Salt.—Muriate of Ammonia.—Extract of Eucalyptus.—Thymol.—Cocaine.—Camphor, etc.

It is easy to understand why Marchand's Peroxide of Hydrogen (medicinal) and better still Hydrozone, will surely accomplish a permanent cure, while the above mentioned bactericides can give only temporary relief, and they are apt to injure or destroy both taste and smell.

First—Because Marchand's Peroxide of Hydrogen and especially Hydrozone, are the most powerful of all antiseptics yet discovered.

Second—Both Marchand's Peroxide of Hydrogen (medicinal) and Hydrozone, are absolutely harmless when applied externally or administered internally.

Third—The borax, boracic acid, subnitrate of bismuth, muriate of ammonia, common salt, camphor, eucalyptus, thymol, are not very dangerous remedies, but their bactericide properties are too limited to destroy the germs which are the cause of the disease.

On the contrary, Marchand's Peroxide of Hydrogen, and better still, Hydrozone, annihilate these germs instantaneously, and they have no injurious action upon the surrounding healthy tissues.

NOTE.—In case of excessive tenderness of the mucous membrane of the nostrils, the spraying of the nose with a cold mixture of either Marchand's Peroxide of Hydrogen (medicinal) or Hydrozone, with water may cause a severe pain for a few moments.

In order to prevent this momentary pain from becoming too great, it is advisable to mix the remedy with lukewarm water instead of cold water. When such is the case, the required quantity of the mixture should be made fresh at each spraying.

Dr. Robert T. Morris advises an application of a three per cent. solution of cocaine before spraying the nostrils with diluted Peroxide of Hydrogen (medicinal) in order to quiet the smarting sensation. (See page 72.)

OZŒNA, OR PUTRID CATARRH OF THE NOSE.

In case of Ozœna, spray the nostrils and the throat copiously and repeatedly at least twice every day morning and evening, with a mixture of :

1 tablespoonful Marchand's Peroxide of Hydrogen
with 3 to 6 tablespoonfuls of water (cold or lukewarm).

Better results will always follow the use of a mixture made of :

1 tablespoonful of Hydrozone
with 6 to 10 tablespoonfuls of water (cold or lukewarm).

It is only in case of extreme tenderness of the mucous membrane that a weaker solution should be used as follows :

1 tablespoonful of Hydrozone
with 12 to 20 tablespoonfuls of water (cold or lukewarm).

In the absence of an atomizer, apply the remedy to the nose by sniffing the liquid from the hand through the nostrils repeatedly, and gargle the throat.

This treatment is so powerful that the destruction of the microbian element takes place immediately, and the putridity which characterizes this peculiar and repulsive affection is arrested three or four days after the beginning of its application.

The cure is ordinarily accomplished in four weeks, but in some instances, when the case is of a very long standing—having become chronic—it requires a longer time to effect on absolute cure.

In case of sneezing and obstruction of the nostrils after each application of the remedy, see the explanations given, page 14, article headed "Catarrh of the Nose."*

HAY FEVER.—ROSE COLD.—CORYZA.

Causes.—The microscopical examination of the unhealthy mucuous secretions and excretions from the nostrils of Hay-fever sufferers demonstrated the presence of small ovoid micro-organisms, which are annihilated instantly when brought into contact with Marchand's Peroxide of Hydrogen (medicinal), (preferably with Hydrozone.)

It is worthy of notice that the degree of susceptibility to the infectious action of these germs or microbes differs with different

*Glycozone should be applied to the nostrils morning and evening, in order to accelerate the cure.

membrane, ozone is set free, the microbes are instantly destroyed, as well as the unhealthy secretions which are caused by their action, and then the diseased surface is thoroughly sterilized and made perfectly clean and healthy. The residue of this reaction is water and a small quantity of coagulated albumen.

In fact, Marchand's Peroxide of Hydrogen treatment as well as the Hydrozone treatment are based upon the indisputable results which are obtained when a Hay-fever patient is going to the White Mountains, where the atmospheric conditions are such that the air contains always a small quantity of ozone. The constant breathing of this ozonized air accomplishes cure of this disease in a very short time.

Hay Fever will always be prevented by an early application of Marchand's Peroxide of Hydrogen (medicinal,) (the prevention of the disease will be still more certain if Hydrozone is used, instead of the medicinal Peroxide) in those cases which occur regularly at known periods of the summer. When the disease has developed, the same treatment will check it within three or four days, and the cure is effected in less than two weeks; but it is necessary to continue the treatment during the whole Hay-fever season.

The remedy should be applied as follows:

First—Spray the nostrils and throat copiously and repeatedly twice or three times every day with a mixture of:

1 tablespoonful of Marchand's Peroxide of Hydrogen (medicinal)
3 to 8 tablespoonfuls of water (cold or lukewarm).

Preferably,

1 tablespoonful of Hydrozone
with 6 to 16 tablespoonfuls of water (cold or lukewarm),

according to the degree of inflammation.

Second.—By means of Charles Marchand's Hand Atomizer and Ozonizer, an inhalation of ozonized vapor should be administered with a mixture thoroughly made of:

half Marchand's Peroxide of Hydrogen (medicinal),
half chemically pure glycerine.

Better results will be obtained when inhalations are administered with:

1 tablespoonful of Hydrozone
1 " of water
2 " of pure glycerine.

The above mixtures should be thoroughly made and renewed every three days.

(See description and cuts of Charles Marchand's Hand Atomizer and Ozonizer, pages 32 and 33.)

The duration of each inhalation should not exceed ten minutes and should be taken three to six times daily. Inspirations should be as deep and prolonged as possible.*

INFLUENZA.—LA GRIPPE.

Causes.—This disease is caused by microbes of a special kind which act upon both the respiratory organs and the nervous system.

The local symptoms of this infectious disease are a severe naso-pharyngeal catarrh with headache, sore throat and bronchitis.

The general symptoms are a feeling of lassitude, with acute pains in the limbs and back, accompanied with fever and profuse perspiration.

The internal treatment which may be prescribed by the physician with an appropriate diet will soon relieve the patient from the general symptoms, but, the danger is due to complications which frequently accompany the influenza, such as laryngitis, bronchitis, acute lobar pneumonia and pleurisy.

In fact, the local symptoms, viz.: The inflammatory condition of the respiratory tract must be promptly subdued in order to prevent the microbian infection from producing dangerous complications.

Owing to the destructive action upon the germs which are the cause of influenza, Marchand's Peroxide of Hydrogen (medicinal) will always subdue the inflammatory condition of the respiratory organs, but Hydrozone will in all cases check and cure the disease more promptly.

Treatment of the Local Symptoms.—*First.*—Spray the nostrils copiously and repeatedly every three hours with a mixture made of:

In very severe cases an application of Glycozone to each nostril, morning and evening, will accelerate a cure. (See page 14, article headed "Catarrh of the Nose.")

The ozonized vapor inhalations constitute a very important part of the treatment for this disease, as it relieves immediately Asthma, which always accompanies Hay Fever.

1 tablespoonful of Marchand's Peroxide of Hydrogen (medicinal),
with 4 to 10 tablespoonfuls of lukewarm water.
Preferably,
1 tablespoonful of Hydrozone,
with 8 to 10 tablespoonfuls of lukewarm water,
according to the sensitiveness of the mucous membrane.

Second.—In order to reach the seat of the disease, deeply located in the bronchial tubes, by means of the hand Atomizer and Ozonizer (see pages 31 and 32) inhalations of ozonized vapor must be administered three to six times every day with a mixture thoroughly made of:

half Marchard's Peroxide of Hydrogen (medicinal),
half chemically pure glycerine.

Preferably,

1 tablespoonful of Hydrozone,
1 " of water,
2 " of pure glycerine.

Shake well and renew these mixtures every three days.

The above described treatments (especially the Hydrozone treatment) will not only check the local symptoms, but it will also prevent the patient from being subsequently troubled with chronic bronchitis.

Treatment of Asthma.—By means of Ch. Marchand's Hand Atomizer and Ozonizer, inhalations of ozonized vapor should be administered three to six times daily. Any similar apparatus made of metal should never be used in connection with neither Marchand's Peroxide of Hydrogen (medicinal) nor Hydrozone.

The action of vaporized Marchand's Peroxide of Hydrogen (medicinal), but preferably Hydrozone vapor, upon the diseased surface of the bronchial tubes or the cells of the lungs is similar to the action of this bactericide upon any open sore or ulcer which is invaded by microbes. The microbian element is destroyed at the contact of ozone, which is set free, and the diseased tissues are purified and made healthy.

The mixture for inhalations which has given the most satisfactory results is made of:

1 tablespoonful of Hydrozone,
1 " of water,
2 " of pure glycerine.

When Peroxide of Hydrogen is used the mixture must be made of
half Peroxide of Hydrogen (medicinal),
with half pure glycerine.

Mix well together by shaking the bottle, and renew this mixture every two days.

The duration of each inhalation should not exceed ten minutes, and after each inhalation, during the winter, the patient should remain in doors for fifteen or twenty minutes.

In many cases of long standing it will be found very beneficial to the patient to take internally every day two or three tablespoonfuls of ozonized water made of:

1 ounce of Hydrozone
with 2 quarts of water.

This will cleanse and purify the stomach and regulate the bowels.

Bronchitis.—Treatment.—By means of Charles Marchand's Hand Atomizer and Ozonizer three inhalations of ozonized vapor should be administered daily.

It is the most efficacious local treatment which can be prescribed to subdue this disease, on account of the harmless, although very powerful, antiseptic and healing properties of Hydrozone.

It quickly checks profuse bronchial secretions, and by its stimulating action upon the diseased tissues of the bronchial tubes an absolute cure is effected in a very short time.

Mixtures for inhalations:

One-half Marchand's Peroxide of Hydrogen (medicinal)
with one-half chemically pure glycerine.

Preferably,

1 tablespoonful of Hydrozone,
1 " of water,
2 " of pure glycerine.

These mixtures should be made perfect by shaking the bottle, and renewed every three days.

As a beverage, drink three or four tumblerfuls of ozonized water made of:

1 ounce of Hydrozone
mixed with 2 quarts of water.

This beverage will have the most beneficial effect upon the stomach, which is always more or less affected by droppings from the throat.

In most all cases it is necessary to administer immediately after each meal 1 teaspoonful of Glycozone diluted with a wineglassful of water, in order to subdue the local inflammation of the stomach.

Laryngitis.—Marchand's Peroxide of Hydrogen (medicinal,) but better still Hydrozone, are certainly the safest remedies to apply in order to subdue this disease.

Spray the larynx or gargle three times every day with a mixture of:
1 tablespoonful Marchand's Peroxide of Hydrogen (medicinal)
with 2 to 6 tablespoonfuls of water.
Preferably,
1 tablespoonful of Hydrozone
with 4 to 12 tablespoonfuls of water.
Swallow a portion of the remedy.
In many cases, ozonized vapor inhalations will accelerate the cure.

Pharyngitis.—Spray or irrigate copiously the pharynx three times every day with a mixture of:

1 tablespoonful Marchand's Peroxide of Hydrogen (medicinal)
with 3 to 7 tablespoonfuls of water ;
Preferably,
1 tablespoonful of Hydrozone
with 6 to 14 tablespoonfuls of water.

Swallow a portion of the remedy, and administer ozonized vapor inhalations morning and evening.

Appropriate internal medication may accelerate the cure.

Croup, Membranous Croup.—This disease seems to be caused by the same specific virus as Diphtheria, but it shows a milder grade of infection.

When fully developed whitish spots or membranous exudations are observed in the larynx. After the membrane is once formed, if left alone it may be cast off in the form of a cylinder, in bands or shreds. Some recent experiments have proved that Marchand's Peroxide of Hydrogen (medicinal) and especially Hydrozone destroy these membranes after a short contact, and by their curative properties the diseased surface is rendered healthy.

In case of Membranous Croup, the nose, throat, mouth, pharynx and larynx should be flooded every two hours with a mixture of:

1 tablespoonful of Marchand's Peroxide of Hydrogen (medicinal) with 4 to 6 tablespoonfuls of water (cold or lukewarm).

Preferably,

1 tablespoonful of Hydrozone

with 8 to 12 tablespoonfuls of water.

The membranes are destroyed, and by using the remedy frequently and freely you prevent their reproduction.

In this way the physician will observe that the inflamed parts are thoroughly and quickly cured, and there is no danger of the patient being exposed to the suffocation resulting from the development of these infected membranes.

As an internal treatment, 1 teaspoonful of glycozone diluted in a wineglassful of water and taken three times a day will prevent any disturbance of the stomach and regulate the bowels.

Whooping Cough—Causes.—Dr. Burger, of Bonn, Germany, and Dr. Affanassieff, of Russia, have demonstrated the presence of micro-organisms in Whooping-cough sputum. Dr. Affanassieff has prepared, with all the precautions, for microscopical experimentation, a small portion of the expectoration of a Whooping-cough patient, which showed large numbers of short rod bacteria, part singly, partly in two and of larger chains.

With pure cultures of these rod bacteria the investigator has made several experimental inoculations upon animals. A solution of this culture upon agar-agar, at least eight days old, in one-half a cubic centimetre of common salt, was made and injected into the windpipe or lungs of dogs and rabbits, of course under antiseptic precautions.

The animals all contracted a disease similar to Whooping-cough, often complicated with Broncho-pneumonia.

Several died, and the autopsy showed that the mucous membranes of the bronchi, of the trachea, and even of the nose, are the chief seats of the injected bacteria.

The same bacterium was found in the lungs and respiratory mucous membranes of children who died of Whooping-cough.

Dr. Affanassieff considers it to be the true cause of Whooping-cough, and names it the "*bacillus tussis convulsivæ.*"

Dr. Schwenker (London *Lancet*, January 7, 1888) and Dr. Wenat (*Medical News*, June 2, 1888) have confirmed Dr. Affanassieff's observations.

One hundred cubic centimetres of pure culture of the above mentioned micro-organisms was submitted to the action of three cubic centimetres of Marchand's $H_2 O_2$ (medicinal), the bacteria was entirely destroyed in seventy seconds.

The bacteria of this same quantity of pure culture submitted to one-and-a-half cubic centimetres of Hydrozone was destroyed in less than sixty seconds, and the culture was thoroughly sterile.

Treatment.—Marchand's Peroxide of Hydrogen (medicinal), but preferably Hydrozone, applied in the following manner, will effect promptly an absolute cure:

First—Spray frequently and copiously the nose, throat, pharynx and larynx with a mixture made of:

1 tablespoonful Marchand's Peroxide of Hydrogen (medicinal)
with 4 to 6 tablespoonfuls of water (cold or lukewarm).

Preferably,

1 tablespoonful of Hydrozone
with 8 to 10 tablespoonfuls of water (cold or lukewarm).

The patient may swallow some of the remedy without discomfort, as it is beneficial and perfectly harmless. Three or four applications every day will be sufficient in most cases.

Second—By means of the Hand Atomizer and Ozonizer, administer ozonized vapor three to six times daily, in order to insure the complete destruction of the microbian element in the respiratory organs.

The mixture for inhalations should be made of:

half Marchand's Peroxide of Hydrogen (medicinal)
with half pure glycerine.

Better results are obtained with:

1 tablespoonful of Hydrozone,
1 " of water,
2 " of pure glycerine.

Mix well together, and renew the mixtures every three days.

The disorders of the stomach which often accompany this disease will always be surely prevented and cured by the use of Glycozone as

an internal treatment. Dose: 1 teaspoonful of Glycozone, diluted in a wineglassful of water, three times daily.

Consumption, Phthisis, Tuberculosis of the Lungs.—Causes.—It is a well demonstrated fact that Consumption or Phthisis is caused by a microbe of a particular species which has been discovered by Dr. Koch, of Berlin, and which is called the Bacillus Tuberculosis of Koch.

With pure cultures of this bacillus, Dr. Koch and other scientific authorities have made experimental inoculations upon animals. A solution of this culture upon agar-agar was made and injected into the windpipe or lungs of dogs. The animals all contracted the Tuberculosis of the Lungs or Consumption. The bacillus is located in tubercules, and it causes the formation of ulcerated cavities of the lungs.

The bacillus tuberculosis is readily destroyed by antiseptic remedies; but although the annihilation of the microbian element is accomplished almost instantaneously by the action of Marchand's Peroxide of Hydrogen (medicinal) (The bacillus tuberculosis is still more promptly destroyed, when brought in contact with Hydrozone); this

Bacillus Tuberculosis
in Sputum X 1250 diameters.

remedy will not cure Consumption when the disease has reached such a degree of development that the lung tissue has broken down. In fact, if it should be possible to bring this remedy into contact with all parts of the lungs which are invaded by the bacilli, undoubtedly the cure of Consumption might be always effected by the ozonized vapor inhalations.

Treatment.—Frequent and deep ozonized vapor inhalations should be administered three to six times daily, with a mixture of:

2 to 3 tablespoonfuls of Marchand's Peroxide of Hydrogen (medicinal) with 1 tablespoonful of chemically pure glycerine well shaken.

Better results will be obtained by administering ozonized vapor with a mixture of:

1 ounce of Hydrozone
with 1 ounce of pure Glycerine well shaken.

Renew the mixture every three days.

The duration of each inhalation should not exceed ten minutes, and inspiration should be as deep and as prolonged as possible. The remedy will reach the lungs if administered either through the nose or mouth, by means of Charles Marchand's Hand Atomizer and Ozonizer. (See page 32.)

Remain in doors for fifteen to twenty minutes after each inhalation during the cold weather.

It is easy to understand that, the ozonized vapor coming into contact with the bacillus tuberculosis, located in the ulcerated cavities of the lungs, "ozone," which it set free, immediately destroys the microbian element as explained before on page 3.

When Consumption has not taken developments beyond its first or second stages—that is, when the ulcerated cavities caused by the bacillus tuberculosis are limited and can be easily reached by the ozonized vapor—the above treatment prevents the spreading of the infection and a cure is effected. But in all cases of Consumption; no matter at what stage of the disease, the relief of the patient will be surely and quickly obtained by the use of the Marchand's Peroxide of Hydrogen treatment and better still by the Hydrozone treatment.

Ozonized vapor has no corrosive, toxic, or injurious action upon the healthy tissues of the lungs ; on the contrary, it has very powerful stimulating properties. In addition to the inhalations, the administration of three tumblerfuls daily of ozonized water, made of:

2 ounces of Marchand's Peroxide of Hydrogen (medicinal)
with 2 pints of water.

A mixture made of:

1 ounce of Hydrozone
with 2 pints of water

will always give better results, and it is more pleasant to the patient.

INFLAMMATORY DISEASES OF THE THROAT.

Sore Throat, Angina, Tonsilitis, Quinsy, etc.—Treatment.—Spray or gargle the throat copiously and frequently with a mixture of:

1 tablespoonful of Marchand's Peroxide of Hydrogen (medicinal) with 3 to 6 tablespoonfuls of water (cold or lukewarm).

Preferably,

1 tablespoonful of Hydrozone

with 6 to 12 tablespoonfuls of water (cold or lukewarm).

The patient may swallow the remedy without discomfort, as it is rather beneficial. In case of Tonsillar Abscesses gargle more frequently (every two hours, for instance), in order to destroy surely and quickly the pus which is present.

Diphtheria.—Causes.—Diphtheria is at first a local disease (see page 2), which is secondarily propagated to the general organism by a contagious virus located about the tonsils; this virus is an albuminoid substance invaded by a large number of bacteria called micrococci.

Marchand's Peroxide of Hydrogen (medicinal) destroys this virus instantaneously, and it has no injurious effects upon the surrounding healthy tissues.

Hydrozone acts in the same manner, but being twice the strength, its action is much quicker, and more effective.

Directions for Use.—Spray or gargle copiously, every two hours, the nose, throat, mouth, pharynx, and larynx with a mixture of :

1 tablespoonful Marchand's Peroxide of Hydrogen (medicinal) with 2 tablespoonfuls of water (cold or lukewarm.)

Better results will be obtained by using a mixture of:

1 tablespoonful of Hydrozone

with 4 tablespoonfuls of water (cold or lukewarm.)

It is beneficial to swallow the remedy, or a portion of it in gargling.

The virus or germs are readily destroyed from the contact with Hydrozone and the contagion is therefore prevented.

When Diphtheria is well developed, spray the child's nostrils, throat, mouth, pharynx, and larynx more frequently with a mixture of:

1 tablespoonful Marchand's Peroxide of Hydrogen (medicinal) with 1 tablespoonful of water (cold or lukewarm.)

Preferably,

1 tablespoonful of Hydrozone

with 2 tablespoonfuls of water (cold or lukewarm.)

Dr. Geo. B. Hope, of the Metropolitan Throat Hospital, of New York, and other leading physicians, recommend the use of Marchand's Peroxide of Hydrogen (medicinal) full strength, particularly when the disease spreads rapidly.

When diphtheria is well developed, spray or irrigate frequently the child's nostrils, pharynx, larynx and mouth with pure Peroxide, preferably with Hydrozone, full strength.

The remedy may be applied by means of a soft camel's hair brush (free from any metallic parts), or by means of an ordinary atomizer entirely made of glass or hard rubber.

Any portion of these remedies which finds its way into the larynx or stomach is beneficial rather than harmful.

Adults and children old enough to gargle and rinse the mouth, will get a better effect in this way.

As an internal treatment, 1 teaspoonful of Glycozone diluted in a wineglassful of water, administered every three hours, will prevent the microbian infection developing in the stomach of the patient.

Scarlet Fever Causes.—It is a proven fact that this disease is caused by bacteria of the micrococcus species as shown by the cut below, which illustrates a magnified portion of excretions of an ulcer of the larynx (800 diameters) taken from a Scarlet-fever patient.

Fig. 1 shows the bacteria of the scarlet fever.
Fig. 2 shows the fibres of the tissue and globules.

Every physician knows that Scarlet Fever is a contagious affection to the highest degree, and that it may be communicated by anything that has touched the patient, such as air, food, clothing, sheets, furniture, curtains, etc. All discharges from bowels, kidneys, nose, mouth, eyes, ears, and skin are dangerous; and the poison may remain active for months or years by means of clothing packed away in drawers.

Treatment.—The germs which cause this disease are readily destroyed by Marchand's Peroxide of Hydrogen (medicinal), and quicker still by Hydrozone; and consequently the most powerful local medication is obtained in the following manner:

Spray or gargle the throat copiously and repeatedly every 2 or 3 hours with a mixture made of:

1 tablespoonful Marchand's Peroxide of Hydrogen (medicinal), with 3 to 5 tablespoonfuls of water (cold or lukewarm).

Preferably,

1 tablespoonful of Hydrozone,

with 6 to 10 tablespoonfuls of water (cold or lukewarm).

As a preventive treatment of secondary infection: On the third day of Scarlatina Fever, the whole body of the patient should be washed, morning and evening, with equal parts of Hydrozone and tepid water. Use a porcelain dish and a clean soft sponge.

This local treatment does not preclude the internal medication, which may be deemed necessary by the attending physician.

As an internal treatment: 1 teaspoonful of Glycozone diluted in a wineglassful of water, administered every three to four hours will prevent the microbian infection developing in the stomach of the patient, and that is a very important result to obtain in order to avoid the infection of the system.

DIRECTIONS FOR USING THE HAND ATOMIZER AND OZONIZER IN DIFFERENT CASES.

First.—The proper mixture of Marchand's Peroxide of Hydrogen (medicinal) or Hydrozone with chemically pure glycerine for administering ozonized vapor inhalations is thoroughly made in the bottle, *L*, as is shown on cuts No. 2 and 3; page 32.

Then, by quickly and repeatedly pressing the terminal soft rubber bulb, *I*, the air is forced through the bottle, *L*, and produces a coarse spray in the vaporizing bulb, *A*. The concussion of the spray against the glass breaks up the mixture, and a large amount of fine ozonized

vapor escapes in a continuous flow through the bent glass tube, *E*, as represented on cut No. 2, or through the straight glass tube, *F*, as shown on cut No. 3.

When the condensed liquid in the bulb, *A*, reaches the lower part of the neck, *B*, it should be emptied in the bottle, *L*, by disconnecting the spray-tube, *D*. Then reconnect the parts, and the apparatus is again ready for use.

Second.—When the apparatus is needed to spray either the throat or the nose Marchand's Peroxide of Hydrogen (medicinal) or Hydrozone are mixed with the necessary quantity of water in the graduated bottle, *L*, as shown on cuts No. 4 and No. 5; page 33.

CAUTION.

The spray tube should be kept perfectly clean by passing tepid water through it at least twice a week. Should it get clogged disconnect the vaporizing bulb, *A*, and the bottle, *L*, unscrew the tip, G, and blow both ways through the spray tube, or pass a thin wire through it, as you would do for an ordinary spray atomizer.

The above described apparatus is entirely made of glass and hard rubber, because no metal should come in contact with Marchand's Peroxide of Hydrogen (medicinal), neither with Hydrozone. Use only silver, hard rubber, glass or porcelain spoons to measure either Marchand's Peroxide of Hydrogen (medicinal), Hydrozone or Glycozone.

Marchand's Peroxide of Hydrogen (medicinal) freezes at 8° to 10° Fahr., Hydrozone freezes at 4° to 5° Fahr. When such is the case thaw it out slowly, at a temperature not exceeding 70° Fahr.

It is advisable to apply Marchand's Peroxide of Hydrogen (medicinal) as well as Hydrozone full strength, but it is not always possible in cases when the sore is exceedingly tender. This explains why it is recommended to dilute these remedies according to the degree of tenderness of the diseased surface.

Take good care not to remove the white foam which is formed when Marchand's Peroxide of Hydrogen (medicinal) or Hydrozone comes in contact with pus or infected sores. The foam is composed exclusively of nascent oxygen and water. Let it stand until it disappears which occurs in a few minutes.

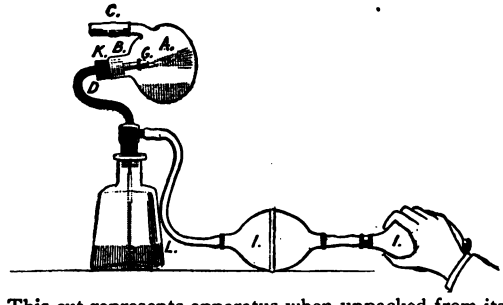
NOTE.—Some practitioners believe that Peroxide of Hydrogen and Hydrozone may be inhaled by means of any of the ordinary inhalers, the same being placed in a jacket vessel of water heated to 120°–140° Fahr. This method is absolutely wrong, for the following reason: When Peroxide of Hydrogen and Hydrozone are heated to 120°–140° Fahr., steam, oxygen (formula O), and only traces of ozone are inhaled by the patient. (See foot note, page 7, article headed "Oxygen Inhalation.") On the contrary, when Peroxide of Hydrogen (medicinal) or Hydrozone vapor is mechanically produced by means of the Hand Atomizer and Ozonizer the vapor which reaches the diseased tissues has the same curative properties as Peroxide of Hydrogen and Hydrozone.

CHARLES MARCHAND'S

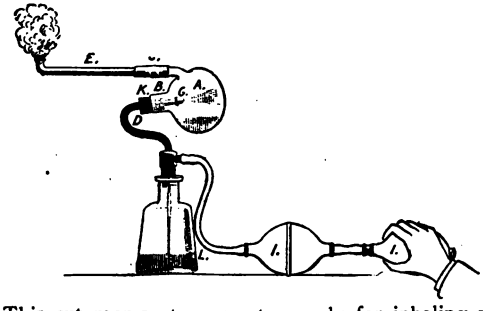
COMBINED

HAND ATOMIZER AND OZONIZER.

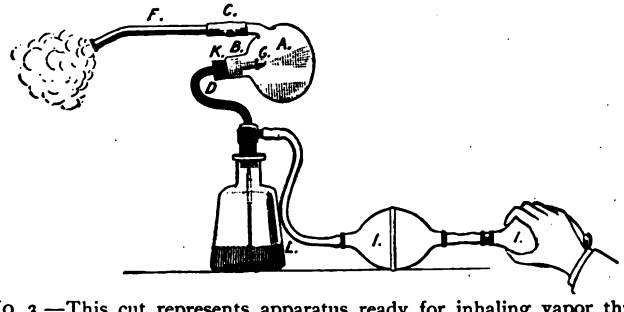
DESCRIPTION:



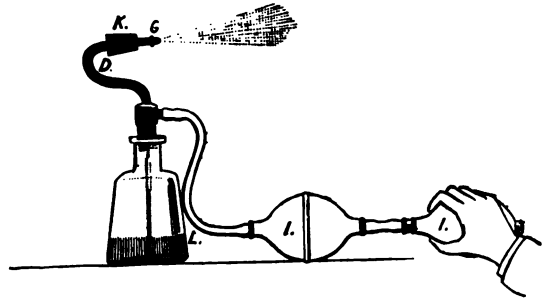
CUT No. 1.—This cut represents apparatus when unpacked from its original box.



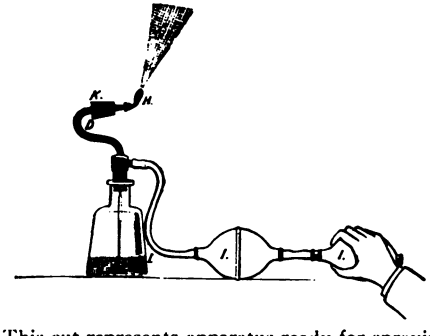
CUT No. 2.—This cut represents apparatus ready for inhaling vapor through the nose in the treatment of Asthma, Bronchitis and lung diseases.



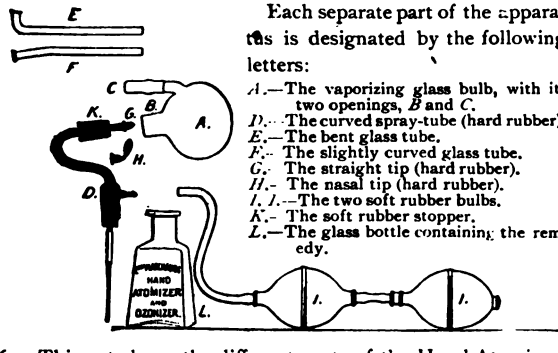
CUT No. 3.—This cut represents apparatus ready for inhaling vapor through the mouth in the treatment of Asthma, Bronchitis and lung diseases.



CUT NO. 4.—This cut represents apparatus ready for spraying the throat.



CUT NO. 5.—This cut represents apparatus ready for spraying the nostrils.



Each separate part of the apparatus is designated by the following letters:

A.—The vaporizing glass bulb, with its two openings, *B* and *C*.
D.—The curved spray-tube (hard rubber).
E.—The bent glass tube.
F.—The slightly curved glass tube.
G.—The straight tip (hard rubber).
H.—The nasal tip (hard rubber).
I. I.—The two soft rubber bulbs.
K.—The soft rubber stopper.
L.—The glass bottle containing the remedy.

CUT NO. 6.—This cut shows the different parts of the Hand Atomizer and Ozonizer when disconnected.

DISEASES OF THE STOMACH.

Dyspepsia.—Predisposing Causes.—Deficient gastric secretion, with resulting fermentation of food, is perhaps the most prevalent cause of Dyspepsia.

The two main constituents of gastric juice, namely, acid and pepsin, may be deficient in quantity or disturbed in their relative proportions. A certain amount of acid is absolutely essential to the digestion process, while a small amount of pepsin may be sufficient to digest a large amount of albuminoid food.

Bidder and Schmidt have made repeated analysis of pure gastric juice, and their results are confirmed by the analysis of five specimens of gastric juices, free from saliva, and taken by me from dogs.

The gastric juice of a dog is composed of:

Water		968.20
Pepton and Pepsin		17.12
Free muriatic acid		2.98
Alkaline chlorides		4.16
Ammonium chloride		0.51
Chlorine		5.16
Phosphates.	Lime	1.54
	Magnesia	0.28
	Iron	0.05

The most careful analysis proved beyond doubt that fresh gastric juice contains only one mineral acid—that is, muriatic acid.

Exciting Causes.—The profession well know that excess in eating and drinking, imperfect mastication and insalivation, the use of indigestible and unwholesome food and of alcohol, the imperfect arrangement of meals, over-drugging, etc., are chiefly the exciting causes of Dyspepsia, and indigestion is the immediate consequence. Constipation of the bowels is an almost universal accompaniment of deranged digestion, and when persistent for years it is apt to lead to the most disastrous consequences.

The most prominent of the local symptoms of Dyspepsia are: A sense of fulness and distention after eating, discomfort during digestion, lack of appetite and eructations, or heart-burn, flatulence, regurgitations of food, and sometimes, in acute cases, nausea and vomiting.

Now that I have resumed the causes of Dyspepsia, which produce a general inflammation of the coats of the stomach, the profession know that the innumerable remedies which have been recommended to subdue this disease may be classified as follows:

First,—Remedies having a stimulating action upon the secretion and muscular coats of the stomach.

Second,—Introduction in the stomach of a necessary amount of one or several of the constituent elements of the gastric juice, in order to make it normal.

Third,—Remedies having the property to lessen the abnormal irritability.

Fourth,—Remedies having the property to facilitate digestion.

It is evident that any remedy which will restore the coats of the stomach to their normal condition will contribute to effect an absolute cure, providing the patient will observe a proper regimen.

Glycozone, by its wonderful antiseptic and healing properties, not only prevents the fermentation of food in the stomach, but it also cures the inflammation or irritation of the mucous membrane in a very short time. Consequently, the most powerful and efficacious treatment to be applied, in order to remove the causes of Dyspepsia, can be formulated as follows:

Before or after each meal administer 1 teaspoonful of Glycozone in a wineglass nearly filled with water, stirred and taken three or four times daily.

Use no other remedy. Avoid eating unwholesome food.

The digestion is accomplished, from the beginning of its application without the least discomfort. The relief is almost immediate, and a cure absolute, if earnestly used.

After a few days the secretion of the gastric juice is made normal, and the most acute cases of Dyspepsia, those of long standing, are permanently cured within two to six months of this treatment, when all other remedies have failed.

Catarrh of the Stomach, or Gastritis, Chronic or Recent.—The mucous membrane of the stomach is usually the seat of this disease.

Among the direct exciting causes of gastric inflammation, cor-

rosive poisons and the excessive use of alcohol are recognized to be more prevalent than any others.

Chronic Catarrh of the Nose is often the cause of Gastritis on account of the large quantity of infected secretions which, after developing in the nasal cavities, find their way into the stomach.

The immediate consequence of that dropping is to produce an inflammation of the coats of the stomach, and little by little the microbian infection produces a general morbid condition having the symptoms of Catarrh of the Stomach.

In cases of acute Catarrh of the Stomach the autopsy shows that the mucous membrane is covered with a thick, tenacious, stringy mucus; the secretion of gastric juice is very imperfect, and the digestion of food cannot be accomplished.

Glycozone, by destroying the morbid element which is the cause of this disease, rapidly subdues the inflammatory condition of the coats of the stomach, and then the mucous membrane, being gradually restored to its normal state, the secretion of the gastric juice will become regular, and the digestion will not be disturbed any more.

Treatment.—Administer, three or four times daily, before or after each meal,

1 to 2 teaspoonfuls of Glycozone,

diluted in a wineglassful of water, well stirred.

This treatment will never fail to accomplish an absolute cure within two to six months, providing the physician will impress upon the mind of his patient that he should take his meals regularly and with sobriety, and that he should avoid eating unwholesome food.

Ulcer of the Stomach.—This disease is due to various causes, of which the immediate effect is to interfere with digestion.

Vomiting of food is an indication of Gastric Ulcer, and in severe cases is followed by hemorrhage.

The gastric juice is secreted with deficiency, and in order to remove the cause of this disorder a powerful antiseptic treatment is required.

The most satisfactory results are obtained:

First,—If the patient uses as a beverage a small quantity of ozonized water at each drink, this ozonized water being made of:

1 ounce of Hydrozone

with 4 pints of water.

The microbian element is readily destroyed by the small quantity of ozone which is set free at the immediate contact of the ulcerated surface.

Second,—The healing part of the treatment consists in the administration of:

1 to 2 teaspoonfuls of Glycozone,

diluted in a wineglassful of water, three or four times daily, before or after eating.

This treatment is absolutely harmless, and the relief of the patient is obtained almost immediately.

Use no other remedy and avoid eating unwholesome food.

An absolute cure is effected within two to six months.

Indigestion, Vomiting in Pregnancy. — Treatment. — Take 2 teaspoonfuls of Glycozone, diluted with one wineglassful of water, immediately after eating.

The relief is immediate and the digestion is accomplished without discomfort.

Inflammatory Diseases of the Intestines, Chronic Constipation, Diarrhœa.—Treatment.—Take immediately after each meal:

1 teaspoonful of Glycozone,
diluted with 1 wineglassful of water.

In addition to this internal treatment administer an enema with:

Glycozone, 1 ounce,
Lukewarm water, 12 ounces.

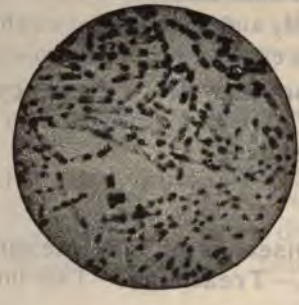
This mixture should be prepared immediately before using, and administered once daily, by means of a hard rubber syringe. Retain the enema as long as possible. See article headed, "The Therapeutics of Glycozone, by Dr. Cyrus Edson," page 11.

CONTAGIOUS DISEASES OF THE ALIMENTARY CANAL.

TYPHOID FEVER, TYPHUS, YELLOW FEVER, CHOLERA INFANTUM, ASIATIC CHOLERA.

Typhoid Fever—Causes and Treatment.—It is a well-known fact that contaminated water is the cause of this disease.

The following cut illustrates the typhoid bacilla, magnified 1250 diameters, from pure culture:



Hydrozone destroys those microbes instantaneously. Consequently a beverage made of:

1 ounce of Hydrozone,
with 2 quarts of water,

alternating with a mixture of:

Glycozone, 1 teaspoonful,
water, 1 wineglassful,

constitutes the most efficacious and powerful antiseptic treatment, which always prevents both pyæmia and septicæmia.

This antiseptic medication does not preclude the genereal treatment which may be prescribed by the attending physician.

When Marchand's Peroxide of Hydrogen (medicinal) is used instead of Hydrozone it requires double the quantity to obtain the same antiseptic effect, that is to say:

1 ounce of Marchand's Peroxide of Hydrogen (medicinal),
with one quart of water,

alternating with Glycozone as above stated.

THE TREATMENT OF TYPHOID FEVER.

By Elmer Lee, A. M., M. D., Chicago.

Read before the Chicago Medical Society, March 5, 1894.

(Reprint from *Chicago Medical Recorder*, for April, 1894.)

Recognition of the value of cleanliness represents the most practical discovery in treatment during the present generation, and, at the same time it constitutes one of the really great discoveries in the history of Medicine. The application of the principles of cleanliness more nearly meets the requirements of a real advance in curative medicine, than all the other propositions known to the profession for the cure of disease.

The symptoms of Typhoid Fever are too well known by all to need particular mention; the question of burning interest is what to do to be saved. The disease is produced by drinking contaminated water, and its seat of development is situated in the intestinal canal. There is a poison there which, if it could be removed before it had become absorbed into the blood, life, and even health would be spared. Allowed to remain, the poison is drawn into the circulation, and very soon the whole body feels the depressing effect. Even at this time, if those remaining poisonous juices and germs which are contained in the bowels were either neutralized by suitable remedies, or washed entirely away by a stream of flowing water, the disease would be checked, the patient spared, and health restored.

Without waiting for development of the symptoms of Typhoid Fever the very first proposition is to make the patient surgically clean, which means the free and abundant use of water internally first, and externally afterwards. The bowels are drenched and cleansed by a copious douche of hot soapy water, made to pass into and out of the lower bowel, until the contents are cleared away and the returning water comes back as clear as before it entered. The relief to the sick person by following such ablution is a delight to the physician and of greatest comfort to the patient. It seems so reasonable, they will say, and in practice it is just as good as they say. Fears were formerly entertained by me, as they are to-day by some of my contemporaries, that something would be bursted by running a large volume of water into the bowels of persons sick with Typhoid Fever.

No harm has ever been done, and neither is it likely to be so caused. Several hundred cases have been so deluged by me with large quantities of water, and in no instance has the result failed to be beneficial. The fear of doing harm may be entirely and forever dismissed. That which is not well understood by any one, always seems inconvenient, or troublesome to perform. But a little practice makes easy the methods which a little while before appeared unpleasant, even hard.

The temperature of the water used for cleansing and washing the bowels, should always depend upon the temperature of the body. If there is high fever the water is more agreeable and useful to the patient when it is cool, viz.: 75 degrees F.; but if the patient is chilly, or has a low temperature, the water should be at blood heat, nearly 100 degrees F. During the first week of illness, the irrigation of the bowels should take place in the morning and again in the evening of each day. After this, one douche of water should be given each day until convalescence. The co-operation of the patient is readily accorded. The treatment takes hold of his reason, which lends both hope and help to the management of the case.

Bathing the body is performed at regular intervals and by such a system as may be convenient and suitable to the individual. The bathtub may be used when the patient is strong enough to be assisted to it, where otherwise, sponging with cold water is very refreshing, and useful to maintain strength and lower the heat of the body.

The most effective and most lasting influence is secured by wrapping the patient in a wet sheet. Two blankets are spread on the bed, covered with a sheet wet with cold water. The patient is wrapped in the sheet, and then folded quickly and completely in the blankets. The time during which the sick one may remain in the wet pack is from one-half to one hour, or even longer if he is comfortable. Bathing opens the pores of the skin, and through them the system discharges a part of the hurtful waste of the body. This bathing should be continued, several times daily during the disease and during convalescence.

The internal treatment is uncomplicated, safe and useful. The basis of it is cold water, and plenty of it to drink. Water cools the body and assists to cleanse it of the poison which makes it sick. The elimination is carried on through the lungs and by the skin. Let the sick have water, it can do no harm in any case; water only does good.

What cruelty it was in fever cases, to keep water from them, and what suffering it caused. A half tablespoonful of Hydrozone* is added to each glass of water. It is the best and most simple remedy that can be given that is likely to be of benefit in helping to cure Tyhoid Fever. Continued for a few days, it is then laid aside for a few days and Glycozone substituted in its place, both as a relief to the patient and for the beneficial effect of the remedy itself. And so on in this way the two remedies are alternated, which is found by me to be the best arrangement for administering these valuable antiseptics. The preparation, Glycozone, is chemically pure, redistilled Glycerine, in which Ozone, or concentrated Oxygen, has been incorporated, and can be taken with as much freedom and safety as pure Glycerine. The Glycozone may be taken in doses of half a teaspoonful to a glass of water as often as water is taken during the day. When it is desired to allay nervousness and induce sleep at night, sulphate of Codeine is used, in doses of from one-half to one grain, by the mouth, or one-quarter to one-half grain by the hypodermic method. This remedy tranquilizes the nervous system and induces sleep, and should be administered at night.

The Typhoid Fever patient receives as food, whatever is simple, at regular intervals of four hours. Milk, simple, natural milk, is nourishment of the highest importance. One egg every day, or every other day, is alternated with a small teacup of fresh pressed juice from broiled steak or mutton. The egg is pleasant to take and more nutritious, when whipped till it is light and then stirred with a small glass of milk. For a simple and nourishing artificial food, malted milk is always good.

The juices of fruits are delicious to the Typhoid Fever patient, and are not to be dismissed on the supposition that they are injurious. It is always interesting to observe that, when the fever is broken, and convalescence is beginning, that water in copious draughts is no longer easy for the patient to take. When the usual glass of water is handed back half drained, it is an encouraging sign of beginning restoration. For wholesome drinking, fresh lake water which has passed through a Pasteur porcelain filter is entirely reliable.

---

*Hydrozone now takes the place of Peroxide of Hydrogen, the strength is double, the dose one-half.

The simplicity of the foregoing plan meets every requirement, and saves nearly every case, unless their is some complication. It is my belief that doing more than this is doing less, and less than this which is so simple, is not enough. The profession agrees that no kind of drug treatment is useful or curative in Typhoid Fever, indeed, one of these days, in my opinion, the statement will be considered applicable to other, if not all, cases of diseases of the bowels.

The plan as proposed by me and practiced during a period of five years, consists, in review, of the following systematic management in Typhoid Fever:

Water used internally as a douche for free irrigation of the bowels, either simple or made soapy with pure liquid soap. Water as a drink, and as a remedy taken copiously and frequently, especially during the stage of the fever. Water is indispensable, and should be given as often as is desirable and agreeable to the circumstances of the case. Frequent application of cool water to the surface of the body during the entire illness.

Remedies: Hydrozone and Glycozone, for the antiseptic effect of the oxygen which is set free in the stomach and intestines. But to be of real value, these remedies are to be taken in considerable quantity largely diluted with water, else, in my opinion they are of little use. The capacity of the bowels is so great that a little of anything cannot spread over its enormous area to effect it beneficially. Cleanliness is the principle governing the use of Hydrozone and Glycozone.

For a remedy that soothes and brings on sleep at night sulphate of Codeine is better than chloral, besides it is the safest and best.

For food, anything that is simple and in liquid form; milk is always the best; milk and whipped eggs; pressed juice from broiled meat. The juice from fresh, ripe fruit. The nutrition should be taken at regular intervals (four hours), that sufficient time may be allowed for digestion.

Stimulants and drugs are injurious without exception, and better results are secured without their use. Typhoid Fever, generally transmitted through drinking water, is a preventable disease. Typhoid Fever affects all classes, but if food and water were always pure, no class or age need contract Typhoid Fever. Cleanliness everywhere and always is the means at hand which makes it possible to escape Typhoid Fever and other diseases of the bowels. Internal cleanli-

ness as well as external is a reasonable proposition to hope for the cure of the unhappy multitude of sick and discouraged humanity.

NOTE.—"The use of Peroxide of Hydrogen as an internal remedy has been widely opposed by some of my patients, owing to the disagreeable metallic taste. This objection was partly obviated by the use of a large dilution of water, but still not to my entire satisfaction.

Since reading the foregoing paper, a new antiseptic remedy called 'Hydrozone' has been received and examined already sufficiently, to promise relief from the objections against Peroxide of Hydrogen for internal use. Hydrozone has now been substituted by me instead of Peroxide of Hydrogen.

First, on account of its greater bactericide power, as it requires but half the quantity of the Hydrozone to obtain the same result, and secondly, the taste of this remedy is not disagreeable to the patient."

Chicago, May 1, 1894.

See page 92 article headed, "Peroxide of Hydrogen in Typhoid Fever," by Dr. H. F. Wiggin; also page 150 article headed, "The Treatment of Typhoid Fever," by Dr. M. A. Clark; also page 156 article headed, "Diseases of the Alimentary Canal; Treatment by Dr. James Osbourn DeCourcy."

HYDROGEN PEROXIDE IN CONTAGIOUS DISEASES.

CHOLERA—YELLOW FEVER—TYPHUS—TYPHOID FEVER.

BY CYRUS EDSON, M. D., NEW YORK.

Commissioner of Health, Health Department, New York City.

(Reprint from *The Doctor of Hygiene* of New York City, April, 1893.)

It is not my purpose in this short article to laud the merits of hydrogen peroxide in the treatment of diphtheria or scarlatinal angina, for in the cure of these diseases the remedy in question has no equal. Its efficacy cannot be justly questioned.

Other more competent observers than I have called attention to the wonderful effect of this agent in the treatment of ulcers, and ulcerating surfaces. The splendid results obtained by numerous distinguished physicians and surgeons through the use of hydrogen peroxide in various diseases are well known to the profession.

I desire, however, to emphasize in a few words the fact that we have in $H_2 O_2$ a powerful antiseptic agent which may be adminis-

tered without harm to the human system, and by means of which the alimentary canal can be more thoroughly disinfected than by any other agent in our present range of therapeutics. In other words, there is no other antiseptic that will effect the amount of germ destruction in the alimentary canal without inflicting injury.

This is true for two reasons:

First, hydrogen peroxide has no toxic properties and consequently may be administered in larger amounts than can the toxic antiseptics.

Second, hydrogen peroxide ranks higher as a bactericide than does any other non-toxic agent, and indeed than do most of the toxic ones.

The elaborate reports made by such men as Paul Bert and Regniard, Baldy, Gibier, Pean and Larrive prove these two facts as conclusively as they can be proven.

It logically follows that we have in hydrogen peroxide a curative agent from the use of which we may expect good results in cases of disease arising from germ infection of the stomach and bowels.

In this connection one fact must be borne in mind: Peroxide of Hydrogen decomposes rapidly in the presence of organic compounds. We must consequently administer the drug rather freely in order to produce the best effects, and on this account also, free irrigation of the lower intestines as devised and recommended by Dr. Elmer Lee, of Chicago, (*Medical Record*, December 17th, 1892,) is adapted to effect the greatest good.

The paper by Dr. Lee, to which I have just referred, details the results of his experiments in the treatment of Asiatic cholera at St. Petersburg last year, and advocates the intestinal irrigation for the cure of the disease.

It is impossible to read this able article and not be convinced that the methods advanced are in the highest degree scientific and logical.

The intestinal irrigation is accomplished by means of a soft rubber tube, one metre in length and of suitable size to be introduced into the rectum, in front of the promontory of the sacrum, into and up through the sigmoid flexure and into the descending colon. This tube which is connected with a reservoir should not be too small nor too large, in order to facilitate its introduction through the folds of the sigmoid portion of the lower bowel.

In fact, the greatest difficulty to be encountered, is to successfully pass the tube in front of the promontory of the sacrum, and enter it into the sigmoid flexure. The tube should be of proper firmness to prevent it from bending or buckling upon itself when the end (which in all cases should be rounded) comes in contact with the obstructing folds of the intestine.

Dr. Lee reports very satisfactory results from a thorough irrigation of the intestines with warm water containing a small proportion of liquid soap made of vegetable oil, potash, and glycerine, in connection with Peroxide of Hydrogen (medicinal) as an internal treatment.

By following Dr. Lee's system of irrigation of the intestinal canal, with a large amount of the above solution (two or three gallons), the whole amount of infected matter which is present in the intestinal canal is mechanically carried away; after which, by a second thorough irrigation of the intestinal canal with one or two gallons of warm water containing 4 per cent. of Peroxide of Hydrogen, (medicinal) any comma-bacilli which may remain in the intestinal canal will be readily destroyed.

In addition to irrigation or washing out of the intestines, Dr. Lee administers internally Peroxide of Hydrogen, two ounces diluted with eight ounces of distilled water, in cupful doses every two hours. The addition of distilled water is made in order to increase the bulk of fluid in the stomach.

It is my opinion that this treatment will prove to be "par excellence" the treatment for cholera nostras, dysentery, typhus and typhoid fever.

In the latter disease hydrogen peroxide has already been tried with beneficial results, administered by the mouth.

For yellow fever, hydrogen peroxide must be considered a specific. Gibier has shown that this disease is due to micro-organisms that infect the intestines, and basing treatment upon this fact, solutions of mercuric bichloride have been advocated for intestinal irrigation, and large doses of the drug have been exhibited with good results.

But $H_2 O_2$ is a far safer and much more efficacious remedy. It has been demonstrated that the germicidal power of a solution containing two ounces of H_2O_2 (medicinal) to a pint of water is equiva-

lent to a 1½ per cent. solution of bichloride of mercury. But it is evident that we cannot use the latter without killing the patient while the former solution is harmless.

In the treatment of yellow fever peroxide of hydrogen should be injected into the rectum in the proportion just described, three times daily, the water being warm.

Distilled or boiled water should always be used to effect the dilution of hydrogen peroxide, for the reason that water containing organic matter slightly weakens the strength of the peroxide, a certain amount of the agent being decomposed.

This brings to mind another:

Hydrogen peroxide is a safe and certain water purifier. When added to the contaminated water it instantly destroys any micro-organisms that the beverage may contain. The proportion necessary to effect this is 3 per cent.

I have used a solution of H_2O_2 for washing out the stomach through the syphon tube (lavage) in cases of gastric catarrh, with most excellent results.

The therapeutic range of hydrogen peroxide is daily enlarging; a comparatively new remedy, it has already won for itself a place in the foremost ranks of our really valuable medicinal agents.

The advance of medical science is necessarily slow, because it must follow in the wake of the development of allied sciences upon which it depends for its resources.*

Chemistry has only recently given us hydrogen peroxide in its pure form and to the efforts of Charles Marchand, of New York, more than to any other man, do we owe this invaluable remedy. A host of imitators have deluged the market with substitutes for his hydrogen peroxide. I have found his preparation *facile princeps*,

Yellow Fever.—According to the recent researches made by Dr. Paul Gibier, of the Faculte de Medicine de Paris, France, it seems to be a positive fact that yellow fever is caused by bacteria which are located in the intestines. This theory being supported by other prominent bacteriologists, the most logical treatment, in order to subdue this intestinal infection, is to administer some laxatives in connection with antiseptic remedies. (See article headed Cholera-Typhus p. 47.)

*Note:—Hydrozone will always give better results than Marchand's Peroxide of Hydrogen (medicinal) on account of its being twice the strength of the Peroxide.

The use of bichloride of mercury solution has been recommended as a rectal injection, although it should be absolutely condemned, owing to its corrosive and toxic properties.

A 3 per cent solution of bichloride of mercury is equivalent, as a bactericide, to a 2 per cent. solution of Peroxide of Hydrogen (medicinal); then 1 per cent. solution of Peroxide of Hydrogen (medicinal), which corresponds to a 4¾ volume capacity, has the same bactericide power as a 1½ per cent. solution of bichloride of mercury. (See on page 8, "Comparative Tests.")

Treatment.—By means of a glass or hard rubber syringe an enema should be administered three times daily, with one pint of a mixture made of:

2 ounces of Marchand's Peroxide of Hydrogen (medicinal)
with 1 pint of lukewarm water;

Preferably,

1 ounce of Hydrozone
with 1 pint of water.

Administer internally 1 tablespoonful of Glycozone with 1 wineglassful of water every hour. (See article headed, "Cholera—Prevention and Treatment," by Dr. Elmer Lee, page 160)

INFLAMMATORY AND CONTAGIOUS DISEASES OF THE EYE.

Catarrhal Conjunctivitis, or Ophthalmia.—Causes.—The profession well know that all forms of conjunctivitis which are accompanied by secretion are caused by germs which develop under more or less favorable circumstances, producing a local infection which is contagious to the highest degree.

The virulence of the contagion increases with the impurity of the atmosphere, and this disease is communicated by conveyance of secretion from one to another, by towels, handkerchiefs, etc., with a prodigious rapidity.

Besides a proper ventilation, it is necessary to isolate sick people, and also to keep them perfectly clean, in order to prevent the contagion; for instance, when any form of conjunctivitis appears in a public institution it is urgent to put all the affected persons apart from the healthy.

Numerous analyses which I have made in order to ascertain the nature of the remedies ordinarily applied in the treatment of this disease show that they are as follows:

Nitrate of Silver.—Sulphate of Zinc.—Sulphate of Copper.—Bichloride of Mercury.—Red Oxide of Mercury.—Carbolic Acid.—Alum.—Sugar of Lead.—Tanin.—Borax.—Boracic Acid.—Sulphate of Atropine.—Cocaine.—Rose Water.

Although some of these remedies have a destructive action upon the microbian element which is the cause of this disease, such remedies should be condemned, owing to their corrosive and irritating properties. In some instances they have the most injurious effects upon the cornea, and very often destroy not only the germs of the disease, but also weaken and destroy the optic nerves, and for this reason their use proves more dangerous than the disease itself.

Tannin, borax, boracic acid and rose water are not dangerous remedies; but their bactericide power is so feeble that a cure could not be effected by their action, since they cannot remove the cause of the infection.

On the contrary, Marchand's Peroxide of Hydrogen (medicinal), and better still, Hydrozone, remove the cause of the disease, and Marchand's Eye Balsam, by its strengthening and curative action, makes the mucous membranes of the eye grow stronger daily.

Treatment.—First the eyelids should be cleansed by a thorough washing made with a mixture of:

1 ounce Marchand's Peroxide of Hydrogen (medicinal),
with 2 pints of lukewarm water.

Preferably,

1 ounce of Hydrozone,
with 2 quarts of water;

then, by means of a glass dropper, apply to the inner portion of the eye, next to nose, one, two, or more drops of the Eye Balsam, every night before retiring, and the first thing in the morning.

If no dropper is at hand, apply the remedy with a soft camel's-hair brush, dipped in the Eye Balsam, to the outer edge of the eye, with an outward motion of the brush, or it may be applied with the finger. In whatever manner Marchand's Eye Balsam is applied, it penetrates the inner surface of the eye by simply opening and shutting the eye repeatedly for a few times.

At first it causes smarting, and often very severe pain for a few seconds, but it is only momentary and soon passes away.

Purulent Conjunctivitis.—Ophthalmia Neonatorum, or Ophthalmia in Children.—The oculists well know that ophthalmia neonatorum, or ophthalmia in children, is much more dangerous in its consequences than the catarrhal conjunctivitis.

This disease, which is the most frequent source of blindness in children, can always be cured if treated as follows:

First: Cleanse the eyelids by a thorough washing made with a mixture of:

1 ounce Marchand's Peroxide of Hydrogen (medicinal),
with 1 pint of lukewarm water.

Preferably,

1 ounce of Hydrozone,
with 1 quart of lukewarm water.

This should be done three times, or at least morning and evening every day.

Each cleansing should be immediately followed by the application of Marchand's Eye Balsam.

See article headed, "Peroxide of Hydrogen in Conjunctivitis," page 154.

Granulated Eyelids.—Same treatment as catarrhal conjuntivitis.

In all diseased conditions of the eye, patients should expose themselves to air-draughts or bright light as little as possible, and the bowels should be kept open by suitable internal medication.

Marchand's Eye Balsam is a remedy which possesses wonderful bactericide properties. "Ozone" gives it its healing power and it is as harmless as water. It not only removes the cause of these contagious affections by destroying instantly the germs or microbes, but has such a strengthening and healing power that the mucous membrane of the eye grow stronger daily under its curative and healing action. There is no danger whatever of injuring either the cornea or the opticnerves, as this remedy has no corrosive action upon the healthy surrounding tissues.

INFLAMMATORY AND PURULENT DISEASES OF THE EAR.

Owing to its wonderful bactericide properties Marchand's Peroxide of Hydrogen (medicinal) is of great value in cases of obstinate chronic suppuration of the middle ear, especially in such cases where it is difficult to reach all the suppurating tract by any local agent. (Hydrozone being twice as strong as the Peroxide will always be used with better advantage.)

The fact that it can be forced through the osseous sinuses without danger highly commends its value in the different diseases just mentioned.

In case of profuse suppuration, the cleansing and destruction of pus should be made perfect by applying the remedy in the following manner:

By means of either a glass or a hard rubber syringe inject into the cavity, morning and evening, half an ounce of Marchand's Peroxide of Hydrogen (medicinal), full strength; (better results will always be obtained with Hydrozone full strength.) Let the remedy act during two or three minutes, and then apply into the ear, as a dressing, a small quantity of absorbent cotton well impregnated with glycozone.

Two washings with Peroxide of Hydrogen, but preferably with Hydrozone, and two dressings with glycozone, applied every day, will cure the most obstinate chronic case in a very short time.

When the disease is not chronic, the suppuration being relatively small, instead of applying either Marchand's Peroxide of Hydrogen (medicinal) or Hydrozone, full strength, these remedies should be diluted with lukewarm water, in the proportion of half and half when Peroxide is used, but preferably 1 ounce of Hydrozone with 2 ounces of water.

The local dressing should always be made with pure glycozone, as heretofore explained. (See article headed Peroxide of Hydrogen and its uses in Ear Diseases, by Dr. Walter B. Johnson, page 108. See also article headed "Wax in the Ear," by Dr. A. S. Tuckler, page 91.)

THE USE OF HYDROZONE IN DENTAL SURGERY.

See article headed Dental Medicine by R. M. Chase, D. D. S., M. D., page 94.

Owing to its wonderful bactericide properties, Hydrozone* should always be used in preference to Marchand's Peroxide of Hydrogen (medicinal) in order to cure promptly the dental diseases and ulcerations of the mouth, which are known to be caused by pathogenic germs, such as, for example:

Alveolar Abscess and Abscess of the Inferior Maxilla.

Laceration, Inflammation and Ulceration of the Gums; Stomatitis.

Necrosis and Caries of the Teeth; Rigg's Disease.

The profession well know that the therapeutical agents used for the treatment of these diseases have been as follows:

Chloride of Sodium.—Salicylic Acid.—Chloride of Zinc.—Nitrate of Silver.—Creosote.—Carbolic Acid.

With the exception of chloride of sodium, which has no appreciable destructive action upon the microbian element, the other above-mentioned remedies are poisonous, and owing to their corrosive properties, the dentists cannot always limit their action to the affected parts.

The creosote and carbolic acid have such an offensive odor that they should not be used at all. (See foot note page 9, article headed "The Dangers of Carbolic Acid.")

On the contrary, Hydrozone is absolutely harmless, its odor and taste are rather pleasant than objectionable to the patient.

By the healing and stimulating properties of this wonderful remedy the diseased surface is made healthy and the surrounding tissues remain in their normal condition.

It has no destructive action upon the enamel of the teeth.

A tooth, being submitted for several days to the action of Hydrozone, full strength, remains intact, but it is bleached.

Hydrozone should never be made neutral before using. (See p. 6.)

*It is used without danger or risk of poisoning the patient, and yet it is the strongest bactericide and purifier known. (See "Comparative Tests," page 8.)

Alveolar Abscess and Abscess of the Inferior Maxilla—Treatment.—When an Alveolar Abscess is caused by any constitutional derangement, internal medication would necessarily have to be prescribed.

The local treatment demanded is such as will destroy the accumulated pus.*

At first, the abscess should be broken by surgical operation or otherwise, then the cleansing and destruction of pus will be accomplished instantaneously, as follows:

By means of a silver, gold or platinum syringe, administer into the cavity, morning and evening, one or two injections with a mixture of:

1 part of Hydrozone,
with 6 to 8 parts of water.

In case of abscess of the Inferior Maxilla, where there is no free egress for the pus and debris, much more energetic treatment is required, and the dentist need not hesitate to administer injections, morning and evening, with a mixture of:

1 part of Hydrozone,
with 4 parts of water.

In chronic cases, in order to prevent the sore from closing between two applications, floss silk, or absorbent cotton impregnated with glycozone, should be applied immediately after each cleansing of the cavity.

Besides the above local treatment, the mouth should be kept clean by frequent washings with a mixture of:

1 tablespoonful of Hydrozone,
diluted in a tumblerful of tepid water.

By following this treatment, the diseased tissues become healthy after one or two applications, and an absolute cure is effected in half the ordinary time.

*When Marchand's Peroxide of Hydrogen is used instead of Hydrozone, the dentist must double the above proportions of the remedy to obtain good results.

Laceration, Inflammation, and Ulceration of the Gums—Stomatitis—Treatment.—Hydrozone is the most powerful remedy which may be applied in order to subdue these very tenacious and painful affections.

It should be used freely and repeatedly as a tooth-wash, morning and evening, in the following proportion:

1 ounce of Hydrozone,
diluted with a pint of water.

Rinse the mouth well, and retain this liquid in the mouth for one minute or so at each washing. No injurious action whatever upon the enamel of the teeth need be feared.

The gums are strengthened by this treatment, healthy granulations develop rapidly, and an absolute cure is quickly effected.

When the above diseases of the gums are caused by constitutional derangement, internal medication would necessarily be prescribed.

Necrosis and Caries of the Teeth.—Caries is a very common cause of necrosis. Excessive medication, especially with mercury, will sometimes produce partial, and, occasionally, total necrosis.

The profession knows that the most common agents that injure the teeth are originated in the mouth by the decomposition of animal and vegetable food.

Inflammation of the mucous membrane of the mouth is a common result of diseased teeth.

The caries may be constitutional or local, and, if constitutional, the dentist knows that it may be modified by therapeutic treatment of the general system.

In all cases of caries, the aggravation of the disease will always be prevented by using frequently and copiously, as a tooth-wash, a mixture of:

1 to 2 ounces of Hydrozone,
with a pint of water.

Rinse the mouth well, at least morning and evening, and retain this liquid in the mouth for one minute or so at each washing.

When the caries is local, an absolute cure is promptly accomplished by following the above treatment.

Rigg's Disease.—Loosening of the teeth, resulting from various causes, characterizes this peculiar disease. Although all sorts of remedies have been used in the treatment of Rigg's disease, still the dental profession acknowledge that they failed to even relieve their patients of this trouble.

Hydrozone, by its healing and strengthening action upon the gums, checks instantly the development of this trouble when applied at an early stage of the disease.

In that case, the remedy should be used as a mouth wash, morning and evening, also after eating, in the proportion of:

2 ounces of Hydrozone,
with one pint of water.

When the disease has developed, the remedy should be used as a mouth wash, more frequently, and in the proportion of:

4 ounces of Hydrozone,
with one pint of water.

Rinse the mouth well, and retain this liquid in the mouth for one minute or so at each washing.

The above treatment will accomplish an absolute cure of Rigg's disease in a very short time, if earnestly followed by the patient.

CHRONIC AND ACUTE ULCERS.

Open Sores, Abscesses, Carbuncles, Cancerous Sores, Burns, etc.—Seethe following reports of cases: The Operative Treatment of Fistula-in-ano, by Dr. Lewis H. Adler, Jr., page 109; Wound Closure after the Empyema operation, by Dr. Charles W. Aitkin, page 98; Hydrogen Peroxide in Pelvic Abscess, *Bacteriological World*, editorial page 94; An Interesting Case of Empyema with Special Reference to the Use of Peroxide of Hydrogen, by Dr. H. F. Brownlee, page 99; Treatment of Acute and Chronic Ulcers, by Dr. James Osborn DeCourcy, page 147; A Resume of the History and Practical Application of Hydrogen Peroxide in Surgical Affections, by Dr. S. Potts Eagleton, page 84; Some of the Uses of Peroxide of Hydrogen in General Surgery, by Dr. Th. H. Manley, page 110; The Etiology, Diagnosis and Treatment of Ulceration of the Rectum, by Dr. Joseph M. Matthews, page 141; The Necessary Peroxide of Hydrogen, by Dr.

Robert T. Morris, page 72; The Peroxide of Hydrogen (Medicinal), an Indispensable Wound Sterilizer, by Dr. Geo. H. Pierce, page 106; Sinus Treated with Peroxide of Hydrogen, "Practice," editorial page 81; Intestinal Obstructions, Diagnosis and Treatment, by Dr Frederick Holme Wiggin, page 111.

The fact that Marchand's Peroxide of Hydrogen (medicinal), but especially Hydrozone are the most powerful pus destroyers is so well known among physicians who have used these remedies that they are acknowledged to be unsurpassed as cleansing agents for pus discharging surfaces, especially in cases otherwise difficult of access, for the instant it touches pus, "ozone" is set free, effervescence takes place, and continues until the pus is destroyed. Physicians may apply these remedies with perfect safety, and they will always obtain the most satisfactory results in the treatment of open sores.

For example, Marchand's Peroxide of Hydrogen, but better still Hydrozone should be applied to the treatment of the following diseases:

Open Boils, Open Abscesses, Phlegmonous Abscesses, Mastoid Abscesses, Ulcers (syphilitic or not), Scrofulous Sores, Cancerous Sores, Bed Sores, Local Gangrene, Broken Ampulla or Blisters, Aphthæ or Ulcerations of the Mouth, Stomatitis, Burns, Skin Diseases, Herpes Zoster or Zona, Eczema, Itch, Piles, Fistula, and all microbian affections.

Treatment.—As a rule, the above mentioned diseases should be treated as follows:

First.—By means of a glass dropper, or otherwise, apply Marchand's Peroxide of Hydrogen (medicinal) but preferably Hydrozone to the sore, and take care not to remove the white foam which is generated when the remedy comes in contact with the diseased surface; let it stand until it disappears, which occurs in a few minutes.

Then, by means of a glass dropper or a soft camel's hair brush, apply the Glycozone to the sore and cover it with a double thickness of surgical lint soaked in Glycozone.

It is advisable to apply Marchand's Peroxide of Hydrogen, Hydrozone and Glycozone full strength, until the pus formation is checked.

It is only in case of excessive tenderness of the sore that Hydrozone and Peroxide of Hydrogen should be diluted with water, and the Glycozone should be diluted with chemically pure glycerine.

When the discharge ceases being abundant, the Peroxide and Hydrozone must be used diluted with water and the glycozone should be thoroughly mixed with chemically pure glycerine, in order to prevent the healthy granulations from forming too quickly.

It is important to note that Hydrozone being twice stronger than the Peroxide, should always be diluted with twice the quantity of water.

In all cases the dressing should be covered with oiled silk.

Anthrax—Carbuncle.—This affection, which is caused by the Bacillus Anthracis, is at first a local disease which requires a powerful antiseptic treatment, immediately after the carbuncle has been opened by a surgical operation or otherwise.

The following cut illustrates the Bacillus Anthracis, magnified 1250 diameters, from pure culture:

Bacillus Anthracis X 1250 diameters.

The Bacillus Anthracis is readily destroyed by Marchand's Peroxide of Hydrogen (medicinal). See article headed "Peroxide of Hydrogen and Ozone. Their Antiseptic Properties," by Dr. Paul Gibier, p. 73. Hydrozone being twice more powerful destroys the Bacillus Anthracis twice quicker.

Treatment.—Wash or irrigate the sore, morning and evening, with Marchand's Peroxide of Hydrogen (medicinal), preferably with Hydrozone, full strength, taking great care that the liquid should be

thrust into the discharging sinuses, in order to secure a thorough contact with the microbian element; the germs and the pus are destroyed, and the cleansing of the sore is made perfect.

As a local dressing a double thickness of surgical lint should be soaked into Glycozone and applied to the sore; and an over-covering of oiled silk should be used.

The above local treatment does not exclude the internal medication.

Cancerous Sores.—Gangrenous Sores.—Treatment.—When a cancer has been thoroughly removed by the knife and preferably by means of the thermo-cautery an absolute cure of the wound may be accomplished by repeatedly applying to the sore, morning and evening, the Hydrozone full strength, until the cleansing has been made perfect.

Then, as a local dressing, a double thickness of surgical lint should be soaked into Glycozone and applied to the sore. Cover the dressing with oiled silk.

Same treatment for gangrenous sores.

ULCERATION OF THE RECTUM. — PHAGEDENOUS CHANCRE.—FISTULA-IN-ANO.—PILES, INTERNAL AND EXTERNAL.

Ulceration of the Rectum.—When the ulceration is local, a cure will be promptly accomplished by frequent and repeated applications of a mixture made of:

1 ounce of Marchand's Peroxide of Hydrogen (medicinal),
with 4 ounces of water.

Better results still, are obtained with a mixture of:

1 ounce of Hydrozone,
with 8 ounces of water.

When the parts have been thoroughly cleansed, apply a small quantity of Glycozone all over the surface. Avoid scratching.

In case of ulceration of the lower gut, inject into the rectum one ounce of the above mixture (preferably Hydrozone mixture) retain it as long as comfortable.

Immediately after evacuation, administer a rectal injection with half an ounce of pure Glycozone. The above treatment is safe and at the same time more powerful than any medication which may be used in order to subdue these troublesome diseases.

Phagedenic Chancre of the Rectum.—Treatment.—The appropriate internal medication being prescribed by the attending physician, will help considerably to accomplish a cure of this disease.

As a local antiseptic treatment, Hydrozone, full strength, should be applied repeatedly at each dressing, morning and evening. When the sore has been thoroughly cleansed and sterilized, apply a small quantity of Glycozone, and avoid all causes of irritation.

Fistula-in-Ano.—Whatever may be the depth of the fistula, and whatever may be the pain which accompanies the application of the remedy, Hydrozone, full strength should be injected repeatedly, morning and evening, by means of a glass syringe, until the cleansing of the cavity is made perfect. Usually, three injections administered at each dressing will be sufficient.

This being done, insert into the sore a roll of absorbent lint impregnated with pure Glycozone, so as to reach the bottom of the cavity.

As soon as the sore begins to heal, apply the Hydrozone diluted with water in the proportion of 1 ounce of Hydrozone with four ounces of water, because it is important that healthy granulations should not generate too quickly.

See articles headed, "The Operative Treatment of Fistula-in-Ano," by Dr. Lewis H. Adler, Jr., page 109. "Abstract from a Treatise on the Diseases of the Rectum, Anus and Sigmoid Flexure," page 110, also, "The Etiology, Diagnosis, and Treatment of Ulceration of the Rectum," by Dr. Joseph M. Matthews, page 141.

Piles, (External).—Treatment.—When piles are external, a prolonged bathing of the parts, being attended to, mornings and evenings with a mixture made of 1 ounce of Hydrozone, with 4 ounces of water, will accomplish promptly an absolute cure of this trouble, providing the constipation (which is usually the cause of this disease) will be subdued by a proper medication of the alimentary canal.

See page 37, article headed, "Constipation."

A small quantity of Glycozone should be applied to the diseased surface after it has been thoroughly cleansed. Avoid scratching.

Piles, (Internal.)—One ounce of the above mixture of Hydrozone with water, should be injected into the rectum morning and evening. Retain it for one minute and inject half an ounce of Glycozone. Use always a glass or hard rubber syringe.

INFLAMMATORY AND INFECTIOUS DISEASES OF THE GENITO-URINARY ORGANS.—GONORRHŒA, GLEET, URETHRITIS, ETC.

Gonorrhœa.—This disease is known to be characterized by a local infection of the urethral canal, which is caused by bacteria of the gonococcus species.

These germs, as well as the unhealthy excretions which are present, are destroyed by Marchand's Peroxide of Hydrogen (medicinal), and better still, by Hydrozone. The physician may prescribe three injections every day, to be administered by means of a glass or hard rubber syringe, with a mixture of:

1 ounce Marchand's Peroxide of Hydrogen (medicinal),
with 5 to 10 ounces of water.

Preferably,

1 ounce of Hydrozone,
with 10 to 20 ounces of water,

according to the degree of sensitiveness of the urethra; retain the remedy in the canal for a few seconds.*

See articles headed: "Peroxide of Hydrogen for Gonorrhœa," by Dr. R. Charest, page 69. "The Necessary Peroxide of Hydrogen," by Robert T. Morris, page 72. "Peroxide of Hydrogen in Diseases of the Mucous and Serous Membranes," by Dr. W. S. Mullins, page 88. "The Value of Peroxide of Hydrogen in the Treatment of Chronic Gonorrhœa," illustrated by a case, by Wm. Roberts, page 100. "Peroxide of Hydrogen in the Treatment of Gonorrhœa," with report of case by Dr. John J. Sullivan, page 125. "The Treatment and Cure of Chancre with Peroxide of Hydrogen," by Dr. Willard Parker Wooster, page 149.

*In case of chronic Gonorrhœa, or Gleet, besides the above treatment, the physician should prescribe one injection every night with Glycozone, diluted with half C. P. Glycerine.

The dangers of stricture resulting from the use of caustic or astringent remedies are absolutely avoided, and the cure is accomplished in half the ordinary time if the above treatment is earnestly followed.

The appropriate internal remedies such as bromide of potassium, bi-carbonate of soda, etc., should be prescribed by the physician.

When the degree of inflammation of the urethra is excessive, each injection should be preceeded by cocaine or ether for the purpose of quieting the smarting. See article headed The Necessary Peroxide of Hydrogen, by Dr. Robert T. Morris, page 72.

WOMEN'S WEAKNESSES.

Whites, Leucorrhœa, etc.—These very troublesome and distressing diseases require not only an appropriate internal medication, but also a powerful local antiseptic treatment.

All the remedies prescribed to subdue these affections are more or less injurious on account of their corrosive, irritating, or poisonous properties; and, in fact, they often produce an aggravation of the disease.

On the contrary, Marchand's Peroxide of Hydrogen (medicinal), and better still Hydrozone, which is more powerful than any one of these antiseptics (see page 8, "Comparative Tests"), has, by its stimulating and healing action upon the diseased mucous membrane of the vagina, a prompt and curative effect.

Treatment.—By means of either a glass or hard rubber syringe copious injections should be administered at least twice daily, morning and evening, with a mixture of:

1 to 4 ounces of Marchaud's Peroxide of Hydrogen (medicinal) with 1 pint of lukewarm water,

Preferably,

1 to 4 ounces of Hydrozone with two pints of lukewarm water, according to the tenderness of the infected surface.

The above treatment will promptly accomplish an absolute cure where all other remedies have failed.

In cases of acute inflammation or ulceration of the womb,

cancer of the uterus, etc., injections should be administered into the uterus morning and evening, with a mixture of:

2 to 4 ounces of Marchand's Peroxide of Hydrogen (medicinal) with 1 pint of lukewarm water.

Preferably,

2 to 4 ounces of Hydrozone
with 2 pints of lukewarm water.

At night a suitable pledget of prepared lamb's wool, which is tied around with a string (for easy removal by the patient) is saturated with glycozone and introduced into the vagina. (See article headed, "Peroxide of Hydrogen as a Deodorizer in Cancer of the Uterus," by Dr. G. W. Kaan, page 101.)

Vaginitis.—Metritis.—Endometritis.—Ulceration of the Cervix-Uteri.—These diseases are promptly cured by the use of Hydrozone and glycozone as above explained, but in severe cases the remedy must be used full strength until the unhealthy secretion ceases being profuse. (See articles headed: "Chronic Cervical Endometritis. —Osmotic Treatment," by Dr. W. S. Wells, page 163; "Local Treatment of Uterine and Vaginal Diseases," by Dr. W. C. Wile, page 167; "Treatment of Vaginitis by Peroxide of Hydrogen (Medicinal)," by Dr. Hermann L. Collyer, page 126; "The Necessary Peroxide of Hydrogen," by Dr. Robert T. Morris, page 72; "Peroxide of Hydrogen in Diseases of the Mucous and Serous Membranes," by Dr. W. S. Mullins, page 88.

Abscess of the Vagina—Treatment.—In case of an abscess of the vagina, the profuse suppuration which follows a surgical operation will be stopped by repeated injections administered with Marchand's Peroxide of Hydrogen, but better still with Hydrozone, full strength.

From the time the pus formation is checked inject repeatedly the Peroxide (morning and evening) diluted in the proportion of,

1 ounce of Marchand's Peroxide of Hydrogen (medicinal) with 8 ounces of lukewarm water.

Preferably,

1 ounce of Hydrozone
with 16 ounces of lukewarm water.

In order to secure a prolonged contact of the remedy with the diseased surface, the patient must be kept in a recumbent position when the remedy is injected into the cavity.

When the healthy granulations generate too quickly under the stimulating action of this treatment, it is necessary to inject (three times every day) a weaker solution made of:

1 ounce Marchand's Peroxide of Hydrogen (medicinal)
with 1 pint of lukewarm water.

Preferably,

1 ounce of Hydrozone
with 2 pints of lukewarm water.

After the cleansing of the sore has been accomplished by the above treatment, apply Glycozone into the sore, as explained on page 60, article headed "Whites, Leucorrhœa."

Fistula (Recto-Vaginal).—Treatment.—At first inject into the sore Marchand's Peroxide of Hydrogen (medicinal), or better still, Hydrozone, full strength, until the discharge ceases being abundant.

Then, morning and evening, inject into the cavity a mixture made of:

1 ounce of Marchand's Peroxide of Hydrogen (medicinal),
with 2 to 4 ounces of lukewarm water.

Preferably,

1 ounce of Hydrozone,
with 4 to 8 ounces of lukewarm water.

The local dressing must be made with glycozone on absorbent lint.

See articles by Dr. Lewis H. Adler, Jr., page 109.—Dr. J. M. Matthews, pages 110 and 141.

INFLAMMATORY DISEASES OF THE BLADDER. PURULENT CYSTITIS. TREATMENT.

Cystitis may be acute or chronic; it is always caused by germs.

In all cases of cystitis the internal medication should be earnestly observed, and the patient should not drink irritating beverages.

The profession well know that the remedies ordinarily applied to the local treatment of this disease have rather palliative than curative properties.

In Peroxide of Hydrogen (medicinal), but better still in Hydro-ıne, we have remedies which readily destroy the pus, and also .e microbian element which is the cause of the disease.

Peroxide of Hydrogen (medicinal) but preferably Hydrozone, ill always prevent development of any affection which very often :company cystitis, such as phlebitis, nephritis and gangrene of the adder.

Treatment.—By means of a double current hard rubber cathe-r, irrigations of the bladder should be administered at least twice ıily, morning and evening, with six to eight fluid ounces of a mix-re made of:

2 ounces of Marchand's Peroxide of Hydrogen (medicinal,) with one pint of tepid water,

Preferably,

1 ounce of Hyrdozone,
with one pint of water.

At the begining of the treatment of chronic cystitis, one ounce Marchand's Peroxide of Hydrogen (medicinal,) preferably, half ı ounce of Hydrozone, full strength, should be injected into the adder every day.

By using a double current catheter the gas which generates to the bladder finds its way out through the outlet opening.

In cases of urethritis and also in cases of acute inflammation or ceration of the bladder, when the pain is very great, Dr. Robert . Morris, of New York, recommends that the application of Perox-e of Hydrogen should be preceeded by cocaine or ether, for the ırpose of quieting the smarting. (See article headed, "The Neces-ry Peroxide of Hydrogen, by R. T. Morris, M. D.," page 72; also :roxide of Hydrogen in Gynecology and in Obstetrics, by Dr. gbert H. Grandin, page 79.)

In addition to the above treatment an injection into the bladder lministered with a small quantity of Glycozone will always accelere a cure.

Every evening before retiring, inject into the bladder one fluid ınce of Glycozone pure.

The above remedies are the most powerful topical agents which ın be used in order to subdue the inflammatory diseases of the ladder.

SKIN DISEASES.

Eczema, Acne, Itch, Erysipelas, etc.—Treatment.—By means of a soft camel's hair brush, or by means of a spraying apparatus made of hard rubber and glass, apply to the diseased surface the Hydrozone full strength and let it dry. Then rub over the surface with Glycozone. Cover the parts with lint. Avoid scratching.

Two dressings made morning and evening will promptly accomplish a cure.

When the disease is caused by blood poisoning, an internal medication is required in order to accomplish the cure.

In case of excessive tenderness of the diseased surface, apply Hydrozone diluted with water, in proportions which will vary with the degree of sensitiveness of the patient. (See article headed Peroxide of Hydrogen as a Local Application in Rhus Tox Poisoning).

In cases of Erysipelas, the internal treatment should be prescribed by the attending physician in order to subdue the fever.

Acne, Pimples on the Face.—Treatment.—Whatever may be the cause of this disease (if it is due to constitutional derangement or not) the patient will always be relieved by the following treatment:

First.—By means of a sharp needle, open each pimple and avoid squeezing.

Second.—Apply to the diseased surface the Hydrozone full strength or diluted with water, according to the degree of sensitiveness. Let the remedy dry.

Third.—Rub over the surface with Glycozone.

When the disease is due to blood poisoning, an appropriate internal medication must be prescribed by the attending physician.

OPINION OF THE MEDICAL PROFESSION.

SOME CLINICAL FEATURES OF DIPHTHERIA AND THE TREATMENT BY PEROXIDE OF HYDROGEN.

By GEORGE B. HOPE, M. D., New York.

Surgeon Metropolitan Throat Hospital; Professor Diseases of Throat, University of Vermont.

(Extract from the *New York Medical Record*, October 13, 1888.)

The sentiment, so long divided, with regard to the constitutional or local nception of diphtheria, seems to be now almost universal in the direction of the latter heory. Consequently, in the light of this opinion, it is clear that the rational reatment must rest more on the recognition of some local agent which will surely lestroy the specific germ before a full development of the constitutional infection is eached, rather than on any system of general medication which might be presumed o act more or less as an antidote in combatting the septic influences occurring in the ourse of the disease. . . . .

On account of their poisonous or irritant nature, the active germicides have a tility limited particularly to surface or open-wound applications, and their free use in reaching diphtheritic formations in the mouth or throat, particularly in children, is unfortunately not within the ranges of systematic treatment. In Peroxide of Hydrogen, however, it is confidently believed will be found, if not a specific, at least the most efficient topical agent in destroying the contagious element and limiting the spread of its formation, and at the same time a remedy which may be employed in the most thorough manner without dread of procuring any vicious constitutional effect. Although the Peroxide is by no means of recent date, its medicinal value has been chiefly confined to the cleansing of foul ulcers and suppurating wounds, and there is hardly more than a casual mention of its utility in the treatment of diphtheria previous to a paper of Dr. Mount Bleyer on this subject.* Quite independently of these observations, somewhat over eighteen months since, at the Metropolitan Throat Hospital, several cases of well-marked buccal diphtheria were treated with the Peroxide, with the effect of confirming in the most satisfactory manner the results obtained by Dr. Bleyer. The report of these cases was consequently omitted, pending the experiences it was supposed others would be quick to furnish on a more extended scale of the new remedy so warmly advocated. Among the somewhat small number of trial cases which have appeared at various times in the medical press, there

* *The Medical Record*, August 13, 1887

are none in which a distinctly negative opinion is expressed, and where only a partially satisfactory result is attained there has appeared to be sufficient cause to permit reasonable explanation for the fact. . . . .

A further explanation for the uncertain results attending the use of the Peroxide lies in the direction of the preparation itself, as also in the manner of its topical application. The usual descriptions allow the diluted strength of from three to seven volumes of distilled water. Inasmuch as the efficacy depends upon the ozonized oxygen in solution, it has seemed desirable to rely on the full strength of the officinal preparation of fifteen volumes, especially when used in the fauces, where any slight irritation from its acidity is not apparent. In all the cases treated, a fresh, standard Marchand's preparation of fifteen volumes was that on which the experience of the writer has been based. An equally important element is in making the application in such a manner as to produce the most determined effect on the diseased tissues with as little local disturbances as possible. Swabbing the tonsils and pharynx is the rough and ready method commonly resorted to, with the second motive of detaching, if possible, the membranous formation. Such treatment is not only unnecessarily harsh toward the patient, but also in intrinsic efficacy falls far short in securing the best therapeutic value of the remedy. It is properly recognized that the removal of the membrane, unless it occurs spontaneously, is not favorable to the local conditions; moreover, the glary mucous coating of the surface does not permit the application to come fairly in contact with the disease, or so superficially as to require the most constant repetition. The latter criticism holds the same bearing, only modified in a degree, to the hand-ball vapor and spray-producing instruments that have been recommended.

A steady, coarse spray, with an air-pressure of twenty pounds or more, will in a few moments' time produce a more positive action than prolonged efforts to reach the fauces by means of cotton applicators. The force of the spray should be sufficient to cleanse at once the surface accumulations, as to destroy the necrosial elements with which it comes in contact. In this manner the removal of the *debris* and the action on the deeper structure go hand in hand.

It will be noticed that immediately on contact with the Peroxide, a white, cloudy coagulum is formed on and about the diphtheritic patches, readily floated off and exposing a more sharply defined and a flatter, smooth and whiter base. Properly speaking, there is no liquefaction of the exudation, but the decomposition of the inflammatory products is so complete that the cells are broken up and freed from the entangling fibrous net-work beneath. In a particular instance, in the case of apparently a continuous diphtheritic slough, involving the tonsils and extending in an unbroken line across the margin of the soft palate, a solitary application exhibited this effect in such a degree that the natural color of the mucous membrane appeared in spots as if the exudation might have bridged across sound tissue without as yet securing attachment to the sub-epithelial layers.

How frequently the treatment is to be followed up depends to a considerable extend on the density as well as the era of the surface involved. It may be said, however, that two applications a day, in the great majority of cases, should be sufficient, if thoroughly performed, to arrest all danger of extension and accomplish the gradual resolution of the local formation.

If the experience of the writer is confirmed, it is apparent how much time, trouble and unnecessary handling is obviated when contrasted with the methods outlining hourly or half-hourly swabbing, or, as one has more frankly expressed it, "scrubbing," with nauseating applications, and culminating in the exhaustion of the patient, if not the most indifferent success. No reasonable objection can be raised either on the score of the expense or the difficulty of transporting the apparatus necessary, as small portable air-receivers can be readily obtained in the instrument shops, on the model of those devised by Codman & Shurtleff, of Boston, and which for the purpose are equally efficient as the larger stationary office fixtures.

The more recent experience of Dr. Gifford (the *Medical Record*, September 1, 1888), establishing the active germicidal properties of Peroxide of Hydrogen, rapidly diminishing in proportion to its dilution in what might be called a geometrical ratio, appears to emphasize in a marked degree the clinical observations on which the main features relating to its employment have been based.

SOME PRACTICAL HINTS IN CONNECTION WITH INTUBATION OF THE LARYNX, AND A RESUME OF 206 CASES OF DIPHTHERIA OPERATED ON FROM 1886 TO 1888.

By J. MOUNT BLEYER, M. D.

New York Medical Journal, February 2, 1888.

(*Extract.*)

. . . . *Irrigation.*—This is an admirable method of washing away the products of the local lesion. I used a No. 8 soft-rubber catheter which is attached to a fountain-bag syringe; the catheter is passed into the nostrils, first the right and then the left. The solution which is used is made by taking Peroxide of Hydrogen (Charles Marchand's), fifteen volume solution, chemically pure, one ounce to twelve ounces of water. With this solution irrigate each nostril thoroughly. After this has been done, the next move is to wash out the mouth, pharynx and larynx. If the child can be managed without forcing the mouth open, there is no need of the insertion of a gag; but if not use it. The patient is to be held well forward over a basin for the reception of the returning fluid. Make a second mixture of the Peroxide of Hydrogen of the strength of four drachms to twelve ounces of water. The catheter is passed well down into the larynx, the surrounding parts, and thoroughly irrigated. The fluids are very seldom swallowed, and if this fluid mixture should be swallowed there is no danger of poisoning, as it is a perfectly harmless antiseptic. The fluid is generally immediately expelled by coughing. The mouth is to be kept wide open and the head well forward. By this mode of treatment patches of membrane, inspissated muco-pus, etc., can be washed away without difficulty and without pain. My experience with Peroxide of Hydrogen for the last four years has made me familiar with its varied use in the treatment of diseases of the nose and throat. From a consideration of the action of Peroxide of Hydrogen upon the deposit of diphtheritic membranes, and the rapid reproduction of bacteria, it will at once be evident that the earlier the application of the remedy is adopted, the better. While the membrane is thin and friable, the action of this agent is thorough, quick, and effective; the deposit melts down before the contact of it like sugar in water, to be reproduced in a short time and again removed until the diseased tissue beneath can be plainly seen free from this characteristic covering. In this way, also, the spread of the membrane is checked and its limits often sharply circumscribed, until after some days, when the germinating power of the membrane is conquered and the poison ceases to produce its kind, no more deposit takes place, and the diseased tissues heal. In view of the rapid reproduction of bacteria already mentioned, it is evident that the applications should be no longer apart than two hours, or even less, according to the rapid reproduction of the membranes. Gargling may be practiced by those who are able, but irrigation is preferred, as a more thorough application is thereby made. Irrigation is easily learned by the nurse, and there is absolutely no danger connected with its use. . .

For internal use I give the preference to Glycozone, which is chemically pure

glycerine saturated with active ozone. It is to be used locally, as a substitute for bichloride of mercury, carbolic acid, permanganate of potash. This is the most powerful of all organic disinfectants and bactericides. I give to a child over two years of age half a teaspoonful of Glycozone, well diluted with water or milk, every two to four hours, and under that age twenty drops. . . .

ON THE MEDICINAL USES OF HYDROGEN PEROXIDE.

By E. R. SQUIBB, M. D., Brooklyn.

Read before the Kings County Medical Association, February 6, 1889, during the discussion on diphtheria, and published in Gaillard's *Medical Journal* for March, 1889, p. 267.

(*Extract.*)

Throughout the discussion upon diphtheria very little has been said of the use of the Peroxide of Hydrogen, or hydrogen dioxide, yet it is perhaps the most powerful of all disinfectants and antiseptics, acting both chemically and mechanically upon all excretions and secretions, so as to thoroughly change their character and reactions instantly. The few physicians who have used it in such diseases as diphtheria, scarlatina, small-pox, and upon all diseased surfaces, whether of skin or mucous membrane, have uniformly spoken well of it so far as the writer knows, and perhaps the reason why it is not more used is that it is so little known and its nature and action so little understood. Until within the last few years, except in a few manufacturing processes, it was chiefly known as a chemical curiosity, rarely seen because difficult to make. . . .

In order to use it intelligently both the pharmacist and the physician must know something of its nature and properties. The name hydrogen dioxide expresses its composition, and its formula, H_2O_2 represents this name. Hydrogen monoxide, H_2O, or water, can under certain conditions be made to combine with a second molecule of oxygen, the result being a water-like liquid, H_2O_2.

This second atom of oxygen is very loosely combined, and the compound molecule is always on a strain to break up into water and oxygen, and when it breaks up, either slowly or rapidly, the oxygen separates in that nascent or most active and potent of its conditions next to the condition known as ozone. It is in the change of this breaking up into the water and active oxygen that the latter element exerts its power, and the simple contact with organic matters, which are themselves of complex nature and in condition to be changed, is sufficient to break up the dioxide and liberate the active oxygen. For example, some albuminoids are instantly changed by contact with hydrogen dioxide, as is shown by rinsing the mouth with a dilute solution, when the albuminoid matters of the secretions are at once coagulated. Then, as all virus is albuminoid, whether propagative or not, it is destroyed, or by coagulation rendered inert by simple contact with this agent, just as it is by contact with corrosive sublimate. This simple experiment of rinsing the mouth with a dilute solution of hydrogen dioxide and examining the discharge of liquid can hardly fail to convince any one of the destructive potency of this active oxygen on some albuminoids, and of its thoroughly cleansing effects upon the mucous surfaces.

Now, if diphtheria be at first a local disease, and be auto-infectious—that is, if it be propagated to the general organism by a contagious virus located about the tonsils, and if this virus, be as it readily is an albuminoid substance, it may and will be destroyed by this agent upon a sufficient and a sufficiently repeated contact. . . . All kinds of spray and injection apparatus can now be easily obtained with fittings of hard rubber or glass, and such only should be used.

A child's nostrils, pharynx, and mouth may be flooded every two or three hours, or oftener, from a proper spray apparatus with a two-volume solution without force, and with very little discomfort; and any solution which finds its way into the larynx or stomach is beneficial rather than harmful, and thus the effect of corrosive sublimate is obtained without its risks or dangers. Adults and children old enough to gargle the pharynx and rinse the mouth will get a better effect in this way, equally without much discomfort, from a three-volume solution; and this applies not only to diphtheria, but to scarlatina and other conditions of the mouth and throat which require cleansing and disinfecting. As vaginal injections in cases of uterine cancer, etc., the strength must be increased until the disinfectant effect is obtained. A copious flushing out with a one-volume solution will often be sufficient. When wetted cloths are laid over external sores an over-covering of oiled silk should be used.

As, in passing through several hands after leaving those of the maker, a little mismanagement may spoil the solution, some easily applicable tests of quality and strength are needed.

So long as the solution will yield any active oxygen at all, it will give this off with active effervescence when poured onto a crystal or two of potassium permanganate. A solution containing only a quarter of its volume will give an effervescence so strong as to be misleading, and therefore a quantitive test is needed. The following is a modification of a testing process given to the writer, with much other useful information by Mr. Charles Marchand, of No. 10 West 4th Street, New York City, one of the oldest and best makers of Peroxide of Hydrogen, and one who supplies it to all parts of the country. . . .

If this agent is to be generally used in the treatment of diphtheria, as it well deserves to be on well established principles of action, it is very important that it be freely applied in the earliest possible stages of the disease, or while it is yet local; and therefore the agent should be easily and promptly accessible in places known to physicians, and not over a mile apart throughout the city, and in hands which know the agent well, and know how to keep it from change and to dispense it on physicians' orders.

If all pharmacists should undertake to keep it—or even all the prominent ones—it would soon share the fate of many other important medicines. . . .

PEROXIDE OF HYDROGEN FOR GONORRHŒA.

REPORT OF R. CHAREST, M. D., ST. CLOUD, MINN.

(*Medical World*, Philadelphia, Pa., June, 1889.)

EDITOR *Medical World:*

I intended for some time to give to the readers of the *Medical World* my favorite treatment for gonorrhœa and gleet, and I will take the opportunity of Dr. H. E Stroud's offer to do so now.

What I consider the simplest, quickest and least harmful treatment of gonorrhœa is Peroxide of Hydrogen in injection ♎ j to the ℥ of distilled water, three to five times a day.

Internally ten to fifteen grains of soda bicarb., every three hours, to keep the urine alkaline.

Walking to be avoided as far as possible, also beer, coffee, pepper, etc.; keep the bowels regular; use a syringe with tapered end and soft rubber tip for the injections.

The Peroxide of Hydrogen is used a good deal in commerce for bleaching purposes, so there are different qualities of it on the market.

For medical use it must be neutral to the litmus paper, odorless and colorless.*

* See page 5, article headed "Important Information on Peroxide of Hydrogen."

This kind you may have from C. Marchand, 10 West Fourth Street, New York City. It must be kept at a temperature below 65° F., and no metal must come in contact with it.

In writing to the above-named firm you will receive a pamphlet on this valuable remedy well worthy to be studied.

I consider it the best germicide, as it is the least harmful and the most effective. For the past two weeks I have used it in the form of a spray, in one of the worst cases of eczema, of four years' standing, which had so far resisted the assaults of a dozen doctors backed up by as many drug stores, and is now almost well.

For syphilitic ulcers, soft chancres, diphtheria, ulcerated cervix, in fact, whenever there is pus or germs, this is the true remedy.

In gonorrhœa, when the penis is highly inflamed, use the injection four to five times a day and the inflammation will rapidly be subdued, leaving the urethra in a perfectly healthy condition. The use of a suspensory is a great relief to the patient.

The fl. ext. of black willow is very good for the erections.

It is also the remedy *par excellence* in gleet, and there is nothing like its inhalation to cut short a paroxysm of asthma.

I don't claim the Peroxide of Hydrogen ($H_2 O_2$) to cure gonorrhœa in three or eight days, for I don't believe there is anything that will do so without danger; but it will cure it in three weeks and leave the unfortunate in the best of condition.

MEDICINAL USE OF HYDROGEN PEROXIDE.

(Editorial *New York Medical Record.*)

It is with pleasure that we peruse the new issue of *Squibb's Ephemeris* for July, 1889, confident as we are that whatever it tells us in accord with the latest scientific advances, and is the result of careful thought and research. Among its articles is one by E. R. Squibb, on "Hydrogen Peroxide" (published also in *Gaillard's Medical Journal*, March, 1889). This substance which is one of the most powerful and at the same time the least harmful of all antiseptics and disinfectants, has never come into general use, probably because it is so unhandy and spoils so readily (Dr. Squibb thinks it is because it is so little known and so little understood). It is made in large quantities by several large firms, but is used chiefly in the preparation of secret remedies. Its properties have been known for a long time. It is a compound of hydrogen and oxygen which is easily decomposed, yielding water and nascent oxygen which quickly oxidizes substance with which it is in contact. The mere application of a solution of Peroxide of Hydrogen to certain albuminoid substances is sufficient to liberate its oxygen, which immediately coagulates the albuminoid substance within its reach. Thus all sorts of virus, whether propagative or not, are destroyed, or by coagulation rendered inert in its presence, just as when strong corrosive sublimate solutions are applied to them. The undiluted liquid peroxide is from its nature very unstable, and on slight disturbance breaks up into water and oxygen with almost explosive rapidity. Therefore it is never made nor used undiluted, but is always dissolved in water. The "Peroxide of Hydrogen" which is furnished to the physician is really a solution of the pure liquid in water to which a little hydrochloric acid has been added, the acid being necessary to prevent rapid decomposition of the peroxide. A solution which will yield its own volume of active (nascent) oxygen is called a one-volume solution. The fifteen volume solution (yielding fifteen times its volume of nascent oxygen) is that which is generally supplied by the makers. It is put up in pint bottles, containing about fifteen fluid ounces, sold at $9 a dozen. It is colorless and nearly odorless, tastes slightly acid, and leaves a slight fleeting, not unpleasant after-impression. Changes in this solution are indicated by the formation of bubbles of gas, which rise through the liquid or

adhere to the sides of the bottle, and also by increased pressure within the bottles. At or below 59° F., the solution does not change for a long time. At 68° F., it does change, sometimes very rapidly, giving off oxygen gas. The solutions, whether strong or dilute, should be kept cool, outside of the window of the sick-room in winter, and on ice or in ice-water in summer. The bottles in which the solutions are contained must not be held in the hand for any considerable time, as its warmth will cause decomposition. It must not be kept in contact with metals, nor applied by means of metal apparatus, as it not only ruins the instruments, but forms poisonous salts from the metal. It does not attack hard rubber or glass. It is not necessary to apply it as strong as when it comes from the maker. The ordinary fifteen-volume solution sold is not injurious, but it is stronger than necessary, and to use it undiluted is wasteful. For the irrigation of a child's nostrils, pharynx, and mouth, a two-volume (made by adding two ounces of the fifteen volume solution to a pint of water solution,) may be used every two or three hours, and any part of this solution passing into the stomach will do good rather than harm.

Adults and children who can gargle—especially in scarlatina and diphtheria—may use, as a gargle and mouth-wash, a three-volume solution (three ounces of fifteen-volume solution to a pint of water). For vaginal injections, as in cancer, etc., a thorough washing with the one-volume solution will always suffice, but it may be necessary to increase the strength until the desired effect is produced. When cloths wetted in a solution are laid upon external sores they should be covered with oiled silk. The methods for testing the activity of any solution are given in full, but need not be repeated here. Mr. Charles Marchand, of No. 10 West Fourth Street, New York City, is referred to as one of the best makers and furnishers of hydrogen peroxide. It is very necessary to get a good article, as careless preparation and after-handling may render it inactive. It is desirable that it should be applied very early when used in diphtheria, before the deposits in the throat have caused disease of the adjacent parts or of the general system.

PEROXIDE OF HYDROGEN FOR THE RELIEF OF BITES FROM VENOMOUS INSECTS.

By PHILIPPE RICORD, M. D., Newark, N. J.

(Page 148, *New York Medical Record*, February 8, 1890.)

"Recently, while charging my atomizer with the full strength of fresh standard Marchand's preparation of Peroxide of Hydrogen, at the bedside of a child suffering with diphtheria, my attention was attracted by the patient's mother, who appeared in pain, and stated that while taking up a blanket to wrap about her child she supposed she had been pricked by a needle, and on further examination discovered a hornet between the folds she had touched. Thereupon I immediately directed the Peroxide of Hydrogen spray into the wound, the surrounding tissues in a few seconds that had elapsed, being swollen to such an extent as to distinctly mark its site. Instantly all pain ceased, and the swelling rapidly disappeared. In this case the wound was still sufficiently open to readily admit the Peroxide of Hydrogen, and the destruction of the virus was apparently in a moment so completely accomplished that no further treatment was afterward required. May we not, therefore, infer that it is quite possible to annihilate many other poisons, likewise, by the prompt application of so powerful yet safe an agent as the Peroxide of Hydrogen?"

THE NECESSARY PEROXIDE OF HYDROGEN.

Read in the Section of Surgery and Anatomy, at the Forty-first Annual Meeting of the American Medical Association, held at Nashville, Tenn., May, 1890.

BY ROBERT T. MORRIS, M. D., NEW YORK.

Published by the *Journal of the American Medical Association*, Chicago, August 9, 1890, page 216.

Stop suppuration! That is the duty that is imposed upon us when we fail to prevent suppuration.

As the ferret hunts the rat, so does Peroxide of Hydrogen follow pus to its narrowest hiding place, and the pyogenic and the other micro-organisms are as dead as the rat that the ferret catches when the Peroxide is through with them. Peroxide of Hydrogen, H_2O_2, in the strong 15-volume solution, is almost as harmless as water; and yet, according to the testimony of Gifford, it kills anthrax spores in a few minutes.

For preventing suppuration we have bichloride of mercury, hydronaphthol, carbolic acid, and many other antiseptics; but for stopping it abruptly, and for sterilizing a suppurating wound, we have only one antiseptic that is generally efficient, so far as I know, and that is the strong Peroxide of Hydrogen.

Therefore I have qualified it, not as "*good*," not as "*useful*," but as "*necessary*." In abscess of the brain, where we could not thoroughly wash the pus out of tortuous canals without injuring the tissues, the H_2O_2 injected at a superficial point will follow the pus, and throw it out, too, in a foaming mixture. It is best to inject a small quantity, wait until foaming ceases, and repeat injections until the last one fails to bubble. Then we know that the pus cavity is chemically clean, as far as live microbes are concerned.

In appendicitis, we can open the abscess, inject Peroxide of Hydrogen, and so thoroughly sterilize the pus cavity that we need not fear infection of the general peritoneal cavity, if we wish to separate intestinal adhesions and remove the appendix vermiformis. Many a patient, who is now dead, could have been saved if Peroxide of Hydrogen had been used when he had appendicitis.

The single means at our disposal allows us to open the most extensive abscess psoas without dread of septic infection following.

In some cases of purulent conjunctivitis, we can build a little wall of wax about the eye, destroy all pus with Peroxide of Hydrogen, and cut the suppuration short. Give the patient ether, if the H_2O_2 causes too much smarting. It is only in the eye, in the nose and in the urethra that Peroxide of Hydrogen will need to be preceded by cocaine (or ether) for the purpose of quieting the smarting, for it is elsewhere almost as bland as water.

It is possible to open a large abscess of the breast, wash it out with H_2O_2, and have recovery ensue under one antiseptic dressing, without the formation of another drop of pus.

Where cellular tissues are breaking down, and in old sinuses, we are obliged to make repeated applications of the H_2O_2 for many days, and in such cases I usually follow it with balsam of Peru, for balsam of Peru, either in fluid form or used with sterilized oakum, is a most prompt encourager of granulation.

If we apply H_2O_2 on a probang to diphtheritic membranes at intervals of a few moments, they swell up like whipped cream and come away easily, leaving a clean surface. The fluid can be snuffed up into the nose and will render a fœtid ozœna odorless.

It is unnecessary for me to speak of further indications for its use, because wherever there is pus we should use Peroxide of Hydrogen. We are all familiar with the

old law "*Ubi pus, ibi evacua*," and I would change it to read "*Ubi pus, ibi evacua, ibi hydrogenum peroxidum infunde.*" That is the rule. The exceptions which prove the rule are easily appreciated when we have them to deal with.

Peroxide of Hydrogen is an unstable compound, and becomes weaker as oxygen is given off, but **Marchand's 15-volume solution will retain active germicidal power for many months if kept tightly corked in a cold place.** The price of this manufacturer's preparation is $1.00 per lb., and it can be obtained from any large drug house in this country. When using the H_2O_2 it should not be allowed to come into contact with metals if we wish to preserve its strength, as oxygen is then given off too rapidly.

H_2O_2 must be used with caution about the hair, if the color of the hair is a matter of importance to the patient; for this drug, under an alias, is the golden hair bleach of the *nymph's despare*, and a dark-haired man with a canary-colored moustache is a stirring object.

PEROXIDE OF HYDROGEN AND OZONE.

THEIR ANTISEPTIC PROPERTIES.

Read before the International Medical Congress, held at Berlin, Germany, on the 7th of August, 1890. Published by *Medical News* of Philadelphia, October 25, 1890. Pp. 416–418.

BY PAUL GIBIER, M. D.

Director of the Pasteur Institute of New York.

GENTLEMEN:

Since the discovery of Peroxide of Hydrogen by Thenard, in 1818, the therapeutical application of this oxygenated compound seems to have been neglected both by the medical and the surgical professions; and it is only in the last twenty years that a few bacteriologists have demonstrated the germicidal potency of this chemical.

Among the most elaborate reports on the use of this compound may be mentioned those of Paul Bert and Regnard, Baldy, Pean and Larrive.

Dr. Miguel places Peroxide of Hydrogen at the head of a long list of antiseptics, and close to the silver salts.

Dr. Bouchut has demonstrated the antiseptic action of Peroxide of Hydrogen, when applied to diphtheritic exudations.

Prof. Nocart, of Alfort, attenuates the virulence of the microbe symptomatic of carbuncle, before he destroys it, by using the same antiseptic.

Dr. E. R. Squibb,* of Brooklyn, has also reported the satisfactory results which he obtained with Peroxide of Hydrogen in the treatment of infectious diseases.

Although the above-mentioned scientists have demonstrated by their experiments that Peroxide of Hydrogen is one of the most powerful destroyers of pathogenic microbes, its use in therapeutics has not been as extensive as it deserves to be.

In my opinion the reason for its not being in universal use is the difficulty of procuring it free from hurtful impurities. Another objection is the unstableness of the compound, which gives off nascent oxygen when brought in contact with organic substances.†

Besides the foregoing objections the surgical instruments decompose the peroxide, hence, if an operation is to be performed, the surgeon uses some other antiseptic during

---

* *Gaillard's Medical Journal*, March, 1889.

† The Peroxide of Hydrogen that I use is manufactured by Mr. Charles Marchand, of New York. This preparation is remarkable for its uniformity in strength, purity and stability.

the procedure, and is apt to continue the application of the same antiseptic in the subsequent dressings.

Nevertheless, the satisfactory results which I have obtained at the Pasteur Institute of New York with Peroxide of Hydrogen, in the treatment of wounds resulting from deep bites, and those which I have observed at the French clinic of New York, in the treatment of phagedenic chancres, varicose ulcers, parasitic diseases of the skin, and also in the treatment of other affections caused by germs, justify me in adding my statement as to the value of the drug.

But, it is not from a clinical standpoint that I now direct attention to the antiseptic value of Peroxide of Hydrogen. What I now wish is merely to give a full report of the experiments which I have made on the effects of Peroxide of Hydrogen upon cultures of the following species of pathogenic microbes: Bacillus anthracis, bacillus pyocyaneous, the bacilli of typhoid fever, of Asiatic cholera, and of yellow fever, streptococcus pyogenes, micro-bacillus prodigiosus, bacillus megaterium, and the bacillus of osteomyelitis.

The Peroxide of Hydrogen which I used was a 3.2 per cent. solution, yielding fifteen times its volume of Oxygen; but this strength was reduced to about 1.5 per cent., corresponding to about eight volumes of Oxygen, by adding the fresh culture containing the microbe upon which I was experimenting. I have also experimented upon old cultures loaded with a large number of the spores of the bacillus anthracis. In all cases my experiments were made with a few cubic centimetres of culture in sterilized test-tubes, in order to obtain accurate results.

The destructive action of Peroxide of Hydrogen, even diluted in the above proportions, is almost instantaneous. After a contact of a few minutes, I have tried to cultivate the microbes which were submitted to the peroxide, but unsuccessfully, owing to the fact that the germs had been completely destroyed.

My next experiments were made on the hydrophobic virus in the following manner:

I mixed with sterilized water a small quantity of the medulla taken from a rabbit that had died of hydrophobia, and to this mixture added a small quantity of Peroxide of Hydrogen. Abundant effervescence took place, and as soon as it ceased, having previously trephined a rabbit, I injected a large dose of the mixture under the dura matter. Slight effervescence immediately took place and lasted a few moments, but the animal was not more disturbed than when an injection of the ordinary virus is given. This rabbit is still alive, two months after the inoculation.

A second rabbit was inoculated with the same hydrophobic virus which had not been submitted to the action of the peroxide, and this animal died at the expiration of the eleventh day with the symptoms of hydrophobia.

I am now experimenting in the same manner upon the bacillus tuberculosis, and if I am not deceived in my expectation, I will be able to impart to the profession some interesting results.

It is worthy of notice that water charged, under pressure, with fifteen times its volume of pure oxygen has not the antiseptic properties of Peroxide of Hydrogen. This is due to the fact that when the peroxide is decomposed nascent oxygen separates in that most active and potent of its conditions next to the condition, or allotropic form, known as "Ozone." Therefore it is not illogical to conclude that ozone is the active element of Peroxide of Hydrogen.

Although Peroxide of Hydrogen decomposes rapidly in the presence of organic substances, I have observed that its decomposition is checked to some extent by the addition of a sufficient quantity of glycerine; such a mixture, however, cannot be kept for a long time, owing to the slow but constant formation of secondary products, having irritating properties.

Before concluding I wish to call attention to a new oxygenated compound, or rather ozonized compound, which has been recently discovered and called "Glycozone" by Mr. Marchand.

This Glycozone results from the reaction which takes place when glycerine is

exposed to the action of ozone under pressure—one volume of glycerine with fifteen volumes of ozone produces Glycozone.

By submitting the bacillus anthracis, pyocyaneous, prodigiosus, and megaterium to the action of Glycozone, they were almost immediately destroyed.

I have observed that the action of Glycozone upon the typhoid fever bacillus, and some other germs, is much slower than the influence of Peroxide of Hydrogen.

In the dressing of wounds, ulcers, etc., the antiseptic influence of Glycozone is rather slow if compared with that of Peroxide of Hydrogen, with which it may, however, be mixed at the time of using.

It has been demonstrated in Pasteur's laboratory that glycerine has no appreciable antiseptic influence upon the virus of hydrophobia; therefore, I mixed the virus of hydrophobia with glycerine, and at the expiration of several weeks all the animals which I inoculated with this mixture died with the symptoms of hydrophobia.

On the contrary, when glycerine has been combined with ozone to form Glycozone, the compound destroys the hydrophobic virus almost instantaneously.

Two months ago, a rabbit was inoculated with the hydrophobic virus, which had been submitted to the action of this new compound, and the animal is still alive.

I believe that the practitioner will meet with very satisfactory results with the use of Peroxide of Hydrogen for the following reasons:

1. This chemical seems to have no injurious effect upon animal cells.
2. It has very energetic destructive action upon vegetable cells—microbes.
3. It has no toxic properties; five cubic centimetres injected beneath the skin of a guinea-pig do not produce any serious result, and it is also harmless when given by the mouth.

As an immediate conclusion resulting from my experiments, my opinion is, that Peroxide of Hydrogen should be used in the treatment of diseases caused by germs, if the microbian element is directly accessible; and it is particularly useful in the treatment of infectious diseases of the throat and mouth.

HYDROGEN PEROXIDE IN DIPHTHERIA.

By DAVID PHILLIPS, M. D.

(Extract from the *New York Medical Journal*, December 6, 1890.)

To the Editor of the *New York Medical Journal:*

Sir:—I would suggest the following local treatment for diphtheria: The application to the membrane of Marchand's solution of Peroxide of Hydrogen, fifteen volumes, with an equal bulk of water, then scraping the membrane off with a curette and applying the Peroxide of Hydrogen, one-third dilution, every hour for six or seven hours, then every two hours. If there is no reappearance of membrane after two days, spray the throat occasionally with an antiseptic spray. In this way the membrane is removed at once. The operation is done at a period of the disease when there is no danger of heart failure, so that the struggles of a child need not be minded.

I am aware that the removal of the membrane in former years was regarded as somewhat dangerous, but at that time nothing was known of disinfectants and germicides.

It would seem that a remedy which, applied to the diphtheritic membrane, removed it after some hours, would prevent its formation. In tolerant patients the peroxide may be put on three or four times so as to be sure of complete disinfection before curetting. A small Thomas' uterine curette answers the purpose admirably. A patient treated as described was comparatively well in two days.

PEROXIDE OF HYDROGEN.

By A. LIVEZEY, M. D., Yardley, Pa.

(Extract from *Medical Summary*, December, 1890. Page 214.)

After trying for the past five years innumerable therapeutic agents for my lupus or epithelioma, I was advised by Dr. Cutter, a celebrated microscopist and scientist of New York, to spray the ulcer with the peroxide and afterwards apply cotton saturated with the same. I used three different local applications, aristol, Howe's salve, and the Peroxide; marked the cotton and sent the same to him.

He reported the best results from the peroxide and advised its continuance. Though it did not kill the sores it made them inactive, while no perceptible difference could be seen upon them from the other two. This peroxide bore the initials P. &. W., our noted Philadelphia chemists. Seeing Marchand's advertisement in the *Summary*, I concluded to try his, and sent for some. He kindiy included in the order his glycozone to use in conjunction with the peroxide. A marked change was the result. The sore looked better, cleaner, healthier, and upon examination of the cotton, Dr. C. wrote me to continue the use of Marchand's. Here was a decided test and in favor of Ch. Marchand's. The ulcer has steadily progressed for the better. * * * *

HYDROGEN DIOXIDE; A RESUME.

By JOHN AULDE, M. D., Philadelphia.

Member of the American Medical Association, of the Medical Society of the State of Pennsylvania, of the Philadelphia County Medical Society, etc.

(Published by the *New York Medical Journal*, December 27, 1890.)

Within the past ten years the use of hydrogen dioxide (Peroxide of Hydrogen) has become quite general among practitioners whose business has led them to give special attention to some particular class of disorders. Many general practitioners, however, have not availed themselves of the benefit afforded by this comparatively recent addition to our therapeutic resources, owing to the expense and the care required in looking after details, together with the uncertainty which attended its employment. These difficulties no longer exist; but, when we consider the advantages to be gained from its use, the process of evolution has been remarkably slow, notwithstanding the sporadic attempts which have been made to attract the attention of the medical profession. Novel methods of treatment are too frequently shunned without investigation by regular physicians, while, on the contrary, these innovations are readily adopted to the wants of the quack.

In the present instance, although the *furore* for antiseptics continues unabated, the true position of oxygen has been ignored by those who should have given it their first attention. Long-continued and persistent effort has erected an imposing superstructure upon a theoretrical foundation, losing sight of the marvelous influences constantly at work in nature. The corner-stone of this ornate edifice originally adopted was carbolic acid; the pilasters which gave strength and beauty to its walls were composed of carbolated gauze, while cornice and roof were made of protective which had been submitted to a carbolizing process. This highly flavored substance has given place to a number of others, some of which are safer, but no more useful; others are more efficient than carbolic acid, but, as usually employed, are far more dangerous. As the foundation for asepsis rests upon absolute cleanliness, so the foundation for antisepsis must rest upon an equally safe basis as regards the patient.

The only agent known at the present time which fully meets our requirements is oxygen in some of its forms. While the spores of anthrax bacilli resists our most poisonous products—such as solutions of hydrochloric acid (two per cent.), boric and salicylic acids in concentrated solutions—oxygenated water alone, in sufficient quantity was shown by Paul Bert and Regnard to possess the power of destroying the bacteria.

The wonderful properties of ozone are but partially understood; like some other powerful agents, it cannot be safely handled, but it gives great promise of usefulness in the future. The statement has been made that ozone is but an allotropic form of oxygen, and that it is identical with hydrogen dioxide (the subject of the present article,) and for all practical purposes, from a therapeutic standpoint, they may be considered substantially the same. Having, then, at our command a remedy possessing such remarkable properties as a bactericide, one which is perfectly harmless when brought into contact with healthy tissues, it will be worth while to study the indications for its use in the treatment of disease. In the first place, however, I should say a word with reference to the causes which have contributed to prevent its universal employment by physicians—causes already referred to incidentally. * * *

3. *The uncertainty* following the employment of the peroxide has arisen from various causes, and, as this is a subject of paramount importance, the items will be considered in detail. In the pure state hydrogen peroxide is exceedingly unstable, and, in order to render it less susceptible to the action of heat, which causes it to part with nascent oxygen rapidly, minute quantities of hydrochloric and phosphoric acids are added to the usual fifteen-volume solution; but this, instead of retarding, rather heightens the effect of the remedy when applied to unhealthy structures, especially mucous surfaces. When the container is allowed to remain in a warm room, or when it is not properly stoppered, the activity of the preparation is materially lessened, if not entirely lost. An excess of acid is objectionable, however, as it renders the peroxide irritating instead of soothing.

Commercial peroxide which is used extensively for bleaching purposes and in the arts, is doubtless responsible for unsatisfactory results, but, as compared with the medicinal preparation, it is a very inferior product, sold at a cost of about eight cents a pound. Physicians should know that this product always contains a large proportion of acids (two to five per cent.), hydrofluoric, sulphuric, hydrochloric, oxalic, and nitric acids, and, knowing this to be the case, they should be careful to examine the reactions and see that the medicinal preparation obtained by patients is supplied in original packages. The commercial product is not "just as good" nor will it "do as well" for the patient; and if these suggestions are kept in view, the success of the peroxide is assured.

Another important thing which I have learned is, that the mixture of the peroxide with glycerine does not make "glycozone," but, instead, a mixture which generates slowly but constantly secondary products, which appear to possess irritating properties almost as toxic as those of formic acid, well known in Central Africa as a deadly arrow poison. I am of the opinion also that when the peroxide is used in the form of an inhalation by heating with water, a considerable proportion of the nascent oxygen is transformed into ordinary oxygen before reaching the affected tissues, and while I can readily understand how this must detract from its efficiency, remarkably prompt results have attended its administration in this manner. The only obstacle in the way of securing immediate and favorable results from the exhibition of this agent is our inability to command at all times a freshly prepared and thoroughly reliable product, free from the impurities incident to its manufacture; but that difficulty, I believe, is no longer an excuse, as it can be supplied by the principle druggists throughout the country. * * *

Therapeutics—From the Peroxide of Hydrogen we may obtain, in the form of a vapor or spray, the therapeutic effects of nascent oxygen, and as a surgical application or antibacterial substance this product is far superior to the gas itself. Used in the form of a vapor by inhalation, it increases the secondary assimilation by favoring the

elimination of excrementitious products through the stimulating effect upon internal respiration. Just as pure mountain air arouses the activity of functions which have been depressed and promotes health, so oxygen evolved in this manner increases tissue change and prevents the suboxidation which attends upon the arrest of cell function. Oxygen is a tissue builder as well as an oxidizer of carbonaceous and excrementitious products. When it is introduced into the alimen ary tract, abdominal fermentations are arrested by the destruction of the germs which produce them; unhealthy mucous secretions are destroyed, while the vitality of the cells lining the walls of the intestine is augmented, and their power against the absorption of ptomaines and leucomaines greatly increased. The surgeon will find the peroxide an efficient and most convenient antiseptic, as it can be freely used in cavities, in discharging sinuses, and upon the most delicate tissues, without danger of producing the slightest irritation. In all cases of threatened collapse, in low conditions of the system, and during convalescence from severe illness, the physician should bear in mind the wonderful revitalizing properties of this remedy. Perhaps the reader will gain a more practical idea of the applications by a reference to some of the more prominent indications, and I shall briefly pass in review some of the diseases in which it may be used with beneficial results. * * *

Since it has been determined that in *yellow fever* and *cholera* the poison germ is found only in the intestine, the peroxide promises to afford exceptional relief in these diseases. When it is introduced into the rectum, the heat of the body will cause oxygen gas to be evolved, while the local action of the drug will destroy all unhealthy products which may be present in the lower bowel. The nascent oxygen will be taken up by the absorbent structures and enter the general circulation; but if we accept the doctrine of phagocytosis, it will do even more than this, by reason of its stimulating action upon the modified white corpuscles, which are now regarded as the special enemies of bacteria escaping through the walls of the intestines. And for the same reason it may be used with advantage as a lavement in the treatment of *diarrhœa*, dysentery, and in typhoid fever. In the latter disease I have used the pure oxygen gas with very great satisfaction, and have found a solution of the peroxide superior as a mouth wash during the progress of the most tedious disorder.

The peroxide should be used in all forms of *indigestion*, and more especially when the stomach is weak and depressed to such an extent that the usual antiseptics are not well tolerated. Those who use it once for the relief of indigestion, gastritis, gastralgia, and the arrest of fermentation, or an abnormal flow of mucous, will have no cause to regret the selection. A large number of *cutaneous affections* are dependent upon an unhealthy condition of the alimentary tract, such as urticaria, eczema, etc., and, of course, are benefited by the use of the peroxide.

Pulmonary affections have long claimed the attention of those who dabbled with oxygen inhalations, and it is in this class of cases where faithful attention to details will produce most marked effects, although I can not be convinced that any medicament in itself can arrest the progress of the disease. The continued use of the peroxide internally improves the primary assimilation; the regular and systematic inhalation of the vapor will not only improve the secondary assimilation, but will also destroy any morbid products with which it comes into contact in the pulmonary tissues, and, judging from my own experience with this agent, I have no hesitancy in saying that its value is not yet appreciated by a large number of physicians who, with it, might be the means of prolonging human life. My observations with the vapor and spray in *asthmatic conditions* have been surprising, and I have found them of signal service in meeting emergencies, such as asphyxia from coal gas, sudden collapse from hemorrhage, typhoid and other fevers. The long continued use of the vapor has a marked effect in restoring the resiliency of the air-vesicles in *emphysema* when it occurs along with asthma in young persons. A gentleman now under treatment has suffered from asthma since he was six weeks old, and is now twenty-five, but under this treatment he has gained weight, is able to sleep regularly every night, and has

increased sixteen pounds in weight during the past three weeks, while the chest measurement has apparently decreased. This method of treatment is valuable in *phthisis* at all stages, but it should be used as an adjuvant to other treatment and attention given to diet. In this connection should be mentioned the usefulness of the vapor in the treatment of *bronchitis*, subacute and chronic, and at the same time the value in aborting attacks of acute catarrh.

Inhalations of the vapor will prove useful as an adjuvant in neuralgia, anæmic headaches, general debility, malarial toxæmia, and corpulence, combined with diet adapted to the various disorders mentioned.

In *surgical practice*, when the solution of the proper strength is brought into contact with diseased tissues, a brisk effervescence takes place and continues until all the pus corpuscles present are destroyed. The solution may be used topically in nearly all cases of catarrh of the upper air passages in the form of a spray, and it may be used as an antiseptic, after the removal of pus in *empyema*. The substance possesses the advantage over other antiseptics of being harmless, and can therefore be used freely in *diphtheria* and *croup*. There are so many indications for its employment that it would be difficult to mention all the *topical uses*, although the following may be referred to, viz., boils, carbuncles, indolent ulcers, carcinoma, and venereal diseases as an injection.

The gynæcologist will find numerous applications for this agent. It may be used in the form of a douche in leucorrhœa, elytritis, vaginismus, and a cotton-wool tampon may be saturated with and placed in a gelatine capsule (veterinary size) and introduced into the vagina in the case of ulceration, vesico-vaginal fistula, and endometritis. The ophthalmologist and aurist will likewise find that it furnishes them the most complete and safe antiseptic that can be had, and gradually its employment will extend to every department of medicine and surgery.

The most flattering commendations of "Marchand's Peroxide of Hydrogen (medicinal)" have been given voluntarily by numerous well-known authors and contributors to medical literature within the past few years, some of whom may be mentioned as additional evidence that the methods here recommended are worthy of further investigation: Dr. W. B. Clarke, of Indianapolis, Ind.; Dr. George B. Hope, Surgeon to the Metropolitan Throat Hospital, New York; Dr. J. Mount Bleyer, of New York; Dr. Robert T. Morris, of New York; Dr. Paul Gibier, Director of the New York Pasteur Institute; Dr. R. Charest, of St. Cloud, Minn.; Dr. E. R. Squibb, of Brooklyn, N. Y.; and others whose names cannot now be recalled. Dr. Morris refers to it as "the necessary Peroxide of Hydrogen", and I have found Marchand's product to possess in a remarkable degree the properties so essential to success—viz., uniformity in strength, purity, and stability.

PEROXIDE OF HYDROGEN IN GYNECOLOGY AND IN OBSTETRICS.

By EGBERT H. GRANDIN, M. D.

Obstetric Surgeon New York Maternity Hospital, Visiting Obtetrician New York Infant Asylum, etc.

(Published by *The Times and Register*, of Philadelphia, January 31, 1891.)

Modern methods of antisepsis enable us in the vast proportion of cases to prevent suppuration. The problem remaining is how arrest it when present, or abort it when imminent.

The virtues of peroxide of hydrogen ($H_2 O_2$) in general surgical practice have recently been heralded by Dr. Robert T. Morris, of this city, in the columns of *The*

*Times and Register.** The object of the writer is to exemplify his personal experience with this agent, through the brief record of a few cases in which he has tested it.

CASE I. *Sub-mammary abscess.*—About one year ago I was consulted by a Mrs. G. She was nursing a two and a half months' puny infant, notwithstanding the fact that the right mamma was fairly riddled with sinuses, and the left presented to my touch faint fluctuation. Her previous medical attendant had exhausted all routine measures, and yet, as she expressed it, "she was going from bad to worse." She had hectic fever and other symptoms of sepsis; her appearance suggested the absolute necessity of rapid action.

I at once weaned the child, of course; made a deep incision in the left mamma, giving exit to a mass of fetid pus, washed out the cavity with bichloride (1-1,000), and packed it with gauze. I thoroughly wetted the sinuses in the right mamma, irrigated and packed them similarly. In a few days I had control of the sepsis, but the pyogenic membrane and its product resisted all my efforts. In despair, and without much hope of success, I washed out the cavities with peroxide of hydrogen (half diluted with glycerine), and applied a compressed gauze bandage. At the end of ten days the abscesses were cured.

CASE II. *Suppurating pelvic hematocele.*—This case was seen in consultation. The patient was a young prostitute, and the only etiological cause I could determine was copulation during menstruation. The tumor bulged in the retro-uterine pouch, and I treated it as follows: Under antiseptic irrigation I aspirated along the finger as a guide, and obtained a mixture of blood and pus. Using the aspirator muzzle as a director, I enlarged the opening transversely, sufficiently to admit a Palmer dilator. Inserting this I divulsed, curetted the cavity—which measured fully three inches square—and washed it out with equal parts compound tincture of iodine and water. I next inserted a flange-rubber drain tube. The cavity was washed out daily through this tube with two and one-half per cent. carbolic, but contrary to my experience with similar cases, it had not contracted much at the end of a week, and was still secreting pus. I then inserted a small Chamberlain glass uterine tube, and distended the cavity with undiluted peroxide of hydrogen. This checked suppuration at once, and when the patient was seen three weeks thereafter, an induration in the posterior vaginal cul-de-sac was the only remnant of the hematocele.

CASE III. *Puerperal septic endometritis.*—Seen in consultation. Fifth day post-partum. Patient had fœtid lochia, tenderness over uterus, rise of temperature, rapid pulse. A number of intra-uterine bichloride douches had been administered before I saw the case. Having differentiated extra-uterine source of the general sepsis, I curetted the cavity of the uterus, according to the method I have repeatedly described and advocated, removing a mass of degenerated decidual matter, and then, instead of applying pure phenic acid to the cavity, and irrigating it with iodine and water, I washed it out through a Chamberlain glass tube with a pint of peroxide of hydrogen (undiluted). The local sepsis was thus at once checked; the patient made a rapid convalescence under the means which suggest themselves for meeting the sepsis already in the sysetm.

These cases typify instances in which the peroxide of hydrogen will be found useful by the gynecologist and obstetrician. As opportunity offers I propose to resort to this agent in vaginitis, urethritis and purulent cystitis. Further, and in this direction I am as yet only experimenting, I am hopeful that in this agent we will find we possess a means which will enable us to avoid laparotomy in certain instances of pyosalpinx. My conclusions on this point, however, it would be premature to state.

My experience thus far with the peroxide of hydrogen justifies the statement that it is absolutely harmless, and that it is at the same time the most efficient of all the agents at present at our disposal for preventing the ravages which uncontrolled suppuration is capable of causing.

---

* See p. 55, reprint of article headed "The Necessary Peroxide of Hydrogen," by Dr. Robert T. Morris.

SINUS TREATED WITH PEROXIDE OF HYDROGEN.

(Extract from *Practice*, Richmond, Va., February, 1891.)

Dr. William F. Waugh tells in the *Times-Register* of an old woman who stepped on a nail, which penetrated the foot almost to the superior surface. A sinus formed, and had been discharging for two months when the patient was first seen. Marchand's peroxide of hydrogen was injected into the sinus by means of a hypodermic syringe. The first effect was to destroy the leather of the piston. The sinus was found to be of a horse shoe shape, the probe passing almost through the foot, between the metatarsal bones, and when the peroxide was injected a hard lump could be felt one inch from the opening on the sole of the foot. This was laid open, and a stream of peroxide was sent through. Result: Cured in a week.

DIPHTHERIA AND THE USE OF HYDROGEN DIOXIDE IN ITS TREATMENT.

Read before the Chemical Society of Maryland, February 6, 1891.

By Dr. EDW. J. BERNSTEIN, Baltimore.

(Extract from *Maryland Medical Journal*, February 21, 1891.)

In this very elaborate paper, Dr. E. J. Bernstein says: (p. 361). . . In my first case of diphtheria I began the use of Sulphide of Calcium, but finding that not only was it disagreeable to both the taste and smell, and that it also soiled the bed linen and clothing of the patient, but that the patient continued to get worse, that the membrane which at first was limited to large necrotic patches on the tonsils, now covered the entire anterior pillars of the fauces and the uvula, which was now considerably swollen.

I discarded the nostrum and began the use of Hydrogen Dioxide, which I directed to be sprayed into the throat every hour of the day and night, gradually relaxing the number of night sprayings as the case went on to improvement. I also directed that the nose should be sprayed at least twice a day with the same solution. Within a few hours the mother said she noticed a change for the better in her child, and when I made my evening call it was quite perceptible. I also noticed, which fact I have since seen corroborated by others who had used the drug, the better color of the child. The lips, which before its administration were quite blue, were now of a healthy red color. The membrane in the throat had made no increase. By the following morning there was a decided decrease in the pseudo-membrane, and from now on began to disappear.

In conjunction with the above local treatment, I gave large doses of tinct. ferri chlo. in combination with tonic dose of quinia every three hours.

Cream of tartar lemonade was given ad libitum to appease thirst and to relieve congestion. The air of the room was regularly charged with steam, generated on a small alcohol stove, to which had been added an alcoholic solution of menthol, eucalyptol and thymol. It is well to say that the strength of the hydrogen dioxide was 50 per cent. of Ch. Marchand's 15-volume solution.

In three other cases which came under my observation, I followed out the same line of treatment, and each recovered without any untoward after effects. In the hope that some of you here this evening may be induced to try this plan of treatment, I submit this paper.

HYDROGEN PEROXIDE IN DIPHTHERIA.

By G. F. ADAMS, M. D., Pulaski, N. Y.

(Published in the *Medical Era* of Chicago, Ill., March, 1891.)

The article in the December *Era* copied from the *Medical Times*, by Dr. George W. Major, in regard to the use of Peroxide of Hydrogen in diphtheria, I can heartily indorse. I have just discharged three cases of diphtheria that I treated with Ch. Marchand's Peroxide of Hydrogen. I sprayed the throat with an atomizer filled with full strength 15-volume solution of peroxide in the early stages. The membrane was removed almost at once, and after the first application and one complete clearing of the throat, I then reduced the 15-volume solution by adding three parts water to one of peroxide, and by spraying the throat thoroughly as often as once an hour, all membrane was destroyed, the breath was kept sweet, and the throat in a fairly comfortable condition. When used at first in full strength the patient may complain of a slight smarting, but no irritation results.

The atomizer should consist of nothing but glass and rubber, as the peroxide has a strong affinity for all metals, except gold, silver, and the rare metals.

I can assure all who try Peroxide of Hydrogen as a local application in diphtheria that they will be thoroughly well pleased with it.

SCARLATINAL DIPHTHERIA.

By WM. F. WAUGH, M. D.

(Extract from *The Times and Register*, Philadelphia, March, 7, 1891.)

I desire to place upon record a case that is unique in my own experience; though my readers may, perhaps, have the better results. The case was that of a child under four years of age. He had been attended by a dispensary physician during the first part of the illness; and this gentleman, when he gave up the case, had given a gloomy prognosis, with which I heartily coincided. On my first visit I found the child's throat covered with blackish sloughs, the lips and tongue covered with fissures and ulcers, the nose discharging freely the irritating and offensive secretions of nasal diphtheria, the eyes showing spots of pus at the inner canthus. The child complained of earache and of pain in the forehead, so that the disease had passed up the Eustachian tubes and into the frontal sinuses. Reddish spots and blotches appeared on the face and body. The stench was dreadful, the urine totally suppressed, but the few drops that were passed could not be saved for examination. The child had been delirious for some time, not being able to recognize his parents. The one good point was that his stomach retained milk fairly well.

It has not been my good fortune to witness the recovery of many such cases. In fact, the more extended is my experience with diphtheria, the more I dread it; especially when it has become firmly established in the Schneiderian mucous membrane, and in the passage leading from the naso-pharynx.

I felt it my duty to inform the parents that death was the only result to be expected; and that they could be very thankful if their other children, six in number, should escape.

However, I gave them a bottle of Marchand's Peroxide of Hydrogen, and directed them to syringe the nostrils and wash the mouth out with a solution diluted to one-fourth its strength. *This was repeated every hour, day and night.* No other treatment was employed, and whiskey was given with the milk, as the only food. The child began at once to improve; the right tympanic membrane gave way, and then the solution was

thrown into the ear, and bubbled out at the nose. The urine began to be secreted more freely, and the child was pronounced out of danger one week from my first visit.

One of the other children was seized with sore throat, enlarged tonsils and torticollis; another had a mild attack of scarlatina, but the others escaped without contracting the disease. This in itself is notable, as the children were all kept at home, in a crowded little house, with miserable sanitation.

THE PEROXIDE OF HYDROGEN—ITS USES IN ABDOMINAL SURGERY.

By CHARLES P. NOBLE, M. D.,

Surgeon-in-Chief of the Kensington Hospital for Women, Philadelphia.

(Published by *Philadelphia Medical News*, April 11, 1891.)

The importance of the Peroxide of Hydrogen as a germicide, and more especially as a pus-destroying agent, is becoming firmly established by rapidly accumulating clinical evidence. A very considerable experience with the drug has made me enthusiastic concerning its remarkable qualities; and I find myself extending its application almost daily. In general, in order that antiseptic or germicidal agents may be used effectively, it is absolutely essential that all foreign material, discharges, etc., be first removed, so that the agent may be brought in direct contact with the surface or tissue to be acted upon. It is also true that the power of penetration of the antiseptics in common use is slight, so that they are reliable only in combatting strictly superficial septic processes. This is particularly true of corrosive sublimate solution, which, by its action on albuminous discharges, forms an impenetrable covering which prevents the solution from coming in contact with the tissues to be acted upon. In this respect the action of the peroxide solution is essentially different. It attacks, disintegrates and oxidizes all discharges and dead tissue with which it comes in contact, thus favoring its contact with and action upon underlying tissues. Moreover, the products of its activity escape as water and carbonic acid gas. At this time I do not propose to discuss the relative value of the Peroxide of Hydrogen as a germicide. I believe that our knowledge upon that subject will be far more exact after a little time than it is at present. The fact, however, that this agent has the power to oxidize dead organic matters suggests to my mind a wide field of usefulness for it in preventing sapræmia or ptomaine poisoning, in the treatment of suppurating tracks and cavities in which dependent drainage cannot be had, and in which free irrigation with water is impracticable

In my work in abdominal surgery I have found Peroxide of Hydrogen of positive value.

In cleaning the hands preparatory to operation I have found it very useful, especially when the skin around the finger-nails has become somewhat horny or roughened from too much use, or from frequent washings, or from prolonged contact with antiseptic solutions. Its power to loosen and to remove dead epithelial cells, and to soften the skin about the nails, is quite remarkable. Moreover, all foreign material about the nails is either oxidized and removed or it is made more accessible to the sublimate solution which is used later. In practice I have used the peroxide after scrubbing my hands through three waters with soap and the nail-brush, then soaking them in turn in saturated solutions of permanganate of potassium and of oxalic acid, and before soaking them in corrosive sublimate solution.

Bacteriological examinations have shown that even this method (omitting the peroxide solution) does not make asepsis certain, as germs have been removed from the subunguial spaces after it has been faithfully carried out. I have not been able to

test the value of the addition of the peroxide of hydrogen solution in securing asepsis by bacteriological experiments, but practically I feel convinced that it is of service in securing that end. The settlement of the question authoritatively will be of great interest to all those who believe in satisfying an antiseptic conscience.

In the management of the drainage-tube after abdominal section, under special conditions, the peroxide solution has been of signal service. In typical cases, in which the drainage-tube is removed after from one to three days, there is no indication for its use. But when from any cause the drainage-tube must remain in longer; it is useful in keeping the tube and drainage track sweet and free from pus. On a number of occasions after a tube had been in a place from a week to ten days, and the discharge has become slightly purulent, I have been able to combat successfully the tendency to suppuration, to shorten the tube gradually, finally to institute a gauze plug for the glass tube, and to secure rapid healing of the drainage track; when otherwise a sinus would have resulted. One such case was one of a ruptured large ovarian tumor, having contents of a jelly-like consistency, which had become distributed throughout the peritoneal cavity. Jelly-like material was discharged through the tube for two weeks, and yet by the use of the peroxide solution rapid healing was obtained. Another case was one of post-operative intra-peritoneal hemorrhage. Tarry blood was discharged through the tube for ten days, yet the same care secured the same result. Another striking case was one of fæcal fistula which formed after the removal of a dermoid ovarian cyst—presumably caused by the growth of a small bunch of hair from the cyst into the bowel. The track was kept clean and the peroxide was used freely. The fæcal fistula closed in three weeks, and the remaining sinus closed within two months from the date of the operation, being kept open for a time by an infected omental ligature, and closing promptly after its discharge.

The peroxide solution has been applied to the drainage track and to the inside of the tube by saturating absorbent cotton, held in a slender long-handled forceps, and passing this down the tube. The peroxide solution has been used pure or diluted (one to two or three.)

I have not used the peroxide solution within the peritoneal cavity during operation, but believe it will prove useful in disinfecting infected pedicles. In removing pus sacs rupture frequently occurs, deluging the broad ligaments with pus. Under these circumstances the ligature applied to secure the pedicle necessarily becomes infected. Heretofore I have washed away septic material with boiled water, and later applied bichloride solution on a sponge to the region of the ligature. In such cases it seems probable that the peroxide solution will be of real value.

In cleaning the abdominal wound preparatory to removing the sutures, the peroxide solution has proven very efficient; especially if a dry dressing—boric acid or iodoform—has been used. Finally, if any pus has formed in the track of the drainage-tube or any of the sutures, the peroxide solution will remove it more efficiently than any other agent.

A RESUME OF THE HISTORY AND PRACTICAL APPLICATION OF HYDROGEN PEROXIDE IN SURGICAL AFFECTIONS.

By S. POTTS EAGLETON, M. D.

Resident Physician in the Children's Hospital, Philadelphia.

(*Medical and Surgical Reporter* of Philadelphia, May 16, 1891.)

Hydrogen peroxide was discovered by M. Thenard, a French chemist, in the year 1818, since which time it has, like many other therapeutical remedies, lain dormant, occasionally being brought forward by some "enthusiast" and its virtues highly

extolled for a time. But the drug, unequal to the task of proving all that had been said in its favor, was again and again returned to its stall of oblivion. Within the past few years, it has been brought before the medical profession, on account of its antiseptic properties, and apparently has awakened into active therapeutic life.

In looking over the literature on the subject, I find that Dr. B. W. Richardson,* in 1862, called attention to the action of hydrogen peroxide in an article upon the subject, which excited widespread interest in the profession at that time and has led to many experiments with the drug, both in surgery and medicine.

It is my purpose to confine myself in this study entirely to the treatment of surgical affections. Before referring to the results of my own experience, during the past few months, I will briefly allude to some of the most important monographs which have appeared from time to time in our medical journals. C. T. Kingzett† believes that the substance exhibits striking antiseptic effects and is capable, even in very small quantities, of arresting the so-called process of fermentation which is originated by living organisms. He further calls attention to the fact that care should be exercised in making the solution neutral before using, and yet admits that neutral solutions are by no means as stable as those of a slightly acid reaction. In closing his monograph he states that the expectations of several noted surgeons of France in the treatment of wounds with this compound have been amply realized; among those may be mentioned M. Baldy, M. Regnard and M. Beau. In summing up his article he futher says that, in his opinion, hydrogen peroxide is far superior to phenol, and that it has been demonstrated beyond question that all wounds treated with peroxide of hydrogen have progressed well, healing generally by first intention.

A. E. Prince‡ speaks most favorable of the results obtained with this remedy.

C. E. Shelley§ considers it to possess anæsthetic properties, and at the same time claiming for the drug, not only a pus destroyer, but that it is an actual stimulant to the surface of wounds. To the carefully conducted experiments of Dr. P. Miquel, quoted by W. D. Bizett,‖ we owe the establishment, on a firm basis, of hydrogen peroxide as a positive germicide. The line of experimentation pursued had the following aim: to determine the quantity of various substances, commonly used as germicides, which, added to a quart of beef tea, would prevent decomposition. Miquel found among a long list of substances used by him, that only two were more powerful than hydrogen peroxide. The following table shows the relative strength, according to his experiments, of the four most powerful germicides:

Biniodide Mercury	0.025 grains.
Biniodide Silver	0.03 grains.
Hydrogen Peroxide	0.05 grains.
Bichloride Mercury	0.07 grains.

The results thus obtained place hydrogen peroxide ahead of bichloride mercury as a germicide, with the advantage, also, of being absolutely void of any toxic action, while the corrosive sublimate is a most virulent poison. Bizett¶ claims that when the pure peroxide, which is syrupy in appearance, is brought into contact with living tissues, it acts as a direct caustic. Various experiments were made by H. Gifford** directly with the *disease germs*, thus testing the germicidal action of the peroxide. Two methods of determining its ability to destroy germs, were used, that of Koch, and his own well-known method. The preparation of peroxide used, was that of Chas. Marchand's (15 vol.). Gifford found that the white and yellow cocci, as well as the bacilli anthrax, were killed in exposures of from $\frac{3}{4}$ to $1\frac{1}{2}$ minutes, It required but $\frac{3}{4}$ of a minute to destroy fully developed anthrax spores. He further found that the solution

*B. W. Richardson, Tr. M. Loc. Lond., 1862, vol. II, pp. 51–53.
†*Ibid.*
‡A. E. Prince, St. Louis, *M. and S. Journal*, 1884, vol. XLVI, pp. 246–252.
§C. E. Shelley, *Practitioner*, Lond., 1884, vol. XXXII, p. 196.
‖W. D. Bizett, *Atlanta M. and S. Journal*, 1888–9, N. S.
¶ W. D. Bizett, *Atlanta M. and S. Journal*, 1888–9, N. S.
** G. Gifford, *Med. Rec.*, N. Y., 1888, Vol. XXXIV, p. 243.

exposed for 40 days, to a temperature of 68–75° killed the yellow pus cocci in from 10–11 minutes. The same solution of peroxide, when diluted with *four* times its bulk, requires an exposure of 30 minutes to kill the pus cocci. If diluted with an equal volume, it kills within ¼ minute. After an experience of six months, I. N. Love* sums up the action of hydrogen peroxide as follows: It is a most efficient means of cleansing purulent surfaces, deep cavities and sinuses, stimulating the healthy process in ulcerating parts. As a destroyer of microbes, a cleanser and securer of comfort, it is of great value as a local application.

My own experience with this drug in surgical affections, during the past ten months; has been most satisfactory. During that time I have used the remedy in the following affections: Abscesses (acute and chronic, of various kinds), suppurating glands, sloughing gangrenous wounds, empyema of the chest, necrosis (general and localized), suppurative otitis media, and wounds of all descriptions. The ages of the cases treated, varied from two to thirteen years. The mode of applying the peroxide was as follows: All cavities, crevices, etc., were syringed with the bichloride of mercury (1-2000, to 1-6000) and then carefully cleansed with the hydrogen peroxide (Marchand's).

At first one volume of this solution was diluted with two to three times its bulk. Later on, I used the full strength. The first effect noticed after applying the peroxide, was the rapid oxidation of all purulent or bloody material, which would cause the distension of crevices, no matter how minute, with the oxygen, which was eliminated as a frothy (often yellowish, depending upon the quantity of pus present) bubbling substance. After the oxidation was completed, the wound was always left in a clean, sweet condition, absolutely free from pus. The wounds were then gently dusted over with iodoform and the usual antiseptic dressings of gauze, etc., were applied. On removal of the dressings, a few days later, it was noticed that the wounds were in almost every instance cleaner (especially marked in acute cases), more healthy in appearance and with a decided diminution in the quantity of pus secreted. The thought being suggested, that possibly the bichloride and not the peroxide was instrumental in producing the favorable results noticed, I commenced a series of control experiments. I would, at one dressing, use simply the bichloride of mercury, following this, at the next dressing, with the peroxide. Thus making actual comparisons in the same cases. After several alternate dressings as above, I found *without exception* that the hydrogen peroxide perceptibly diminished pus formation to a much greater degree than simply the bichloride alone.

The belief that iodoform should not be used in conjunction with the peroxide, for fear of liberating free iodine, which, as a direct irritant, would defeat the object in view, is, I believe, erroneous. I found that when a quantity of iodoform was placed in a small receptacle covered with the peroxide solution and then set aside for periods varying from three hours to three days, on being treated chemically for free iodine, with the ordinary starch test, gave negative results. Although one drop of a solution of iodine, on being added to the same solutions, gave a brilliant reaction on addition of the starch.

In all cases in which the peroxide was given a fair trial, I have observed a direct healing effect upon the granulating tissues. It is therefore evident that, owing to its oxidizing action on the pus and the diminution of the purulent secretions after its use, it does, either directly or indirectly, cause a destruction of the anthrax bacillus. In concluding my article, I think, from the chemical as well as the experimental evidence which has been deduced, we can safely sum up the action of peroxide of hydrogen in the treatment of surgical affections, as follows:

1. Hydrogen peroxide is a positive germicide and a possible stimulant to granulating tissues.

2. Owing to its especial property of eliminating oxygen, it is of unparalleled value

* I. N. Love, *Phila. Med. Times*, 1887–1888, Vol. XVIII, pp. 362–364.

in the distension of suppurating sinuses and cavities, especially in the mastoid region, or where it is almost impossible to reach unhealthy surfaces by other means.

3. The diluted solution is perfectly harmless and can with safety be used in any quantity.

4. The strong concentrated solution, syrupy in consistence, is a direct irritant to all tissues and should never be used.

5. It possesses healing and cleansing qualities as well as those germicidal in nature.

6. When exposed to light it loses strength; care should therefore be exercised in keeping the bottles well stoppered with rubber corks, and in a cool, dry place.

7. Fibrin, cellular tissue and some metals, instantly decompose it. In contact with sugar and starch it eliminates carbon dioxide (CO_2).

8. In washing suppurating surfaces, it should be used until oxidation ceases, thus showing a complete destruction of all existing purulent material.*

EXTRACT FROM PAPER ON "ADJUVANTS OR AIDS TO GYNÆCOLOGY—NEITHER MEDICAL NOR SURGICAL."

BY C. A. PHILLIPS, M. D., BOSTON, MASS.

Read before the International College of Homœopathy, held at Atlantic City, June 19, 1891.

. . . Another local application of great service in the treatment of gonorrhœal or syphilitic and all ulcerative conditions of the genital organs is Marchand's Peroxide of Hydrogen. While its power to destroy germs and septic matter with which it comes in contact is unsurpassed by any other germicide or antiseptic, it is perfectly harmless to living tissues. With a swab of cotton saturated with this solution the parts can be more thoroughly cleansed than by any other means with which I am acquainted,—thus removing effete poisonous or septic matter, and I cannot understand wherein this is any more objectionable than cleansing the skin with soap and water, or the teeth with a brush.

MEDICINAL PEROXIDE OF HYDROGEN AND GLYCOZONE.

BY DR. J. H. DEWOLF, BALTIMORE, MD.

(*The Southern Medical and Surgical World*, of Baltimore, Md., August, 1891.)

The topical application of Oxygen is capable of immense benefit. In the pitting of Small-pox I most earnestly advocate and urge its use, either in the form of Glycozone or properly diluted Marchand's Peroxide of Hydrogen (Medicinal). I believe much deformity can be obviated by its use, and the force of the disease lessened. Foul and indolent ulcers, when treated by iodoform, carbolic acid, etc., are apt to poison the patients; such cases have occurred. With oxygen that would be impossible. In large suppurating sores, where the various germicides are dangerous on account of the large breach of continuity and absorption of the poison, the topical application of oxygen is perfectly safe, and to say the least, equally efficacious.

Ophthalmia is advantageously treated by the topical application of either the Peroxide or Glycozone. Styes can be aborted if Glycozone be rubbed on the lids at the commencement; and as styes are painful, and swelling and pain last for a few days, the use of

(Read before the D. Hayes Agnew Surgical Society of the undergraduates of the Medical Department of the University of Pa., February, 1891.)

Glycozone is satisfactory to both patient and physician. In nasal catarrh, when the mucous membrane is dry and crusts form, prompt and more satisfactorily results can be obtained from Glycozone than from any other means known.

In the various chronic inflammations of the throat which are ordinarily obstinate to treatment, I have frequently satisfactorily treated by the Peroxide (diluted,) especially when the orifice of the eustachian tube was closed by swelling, and the patient rendered uncomfortable by temporary deafness and ringing in the ears.

PEROXIDE OF HYDROGEN, MATERIA MEDICA AND THERAPEUTICS.

Vol. II, Page 681, 1891.

By JOHN V. SHOEMAKER, A. M., M. D.

Professor of Materia Medica, in the Medico Chirurgical College, of Philadelphia, Pa.

PHARMACOLOGY.—The usual strength of peroxide of hydrogen is called the fifteen-volume solution, because each portion of the solution yields fifteen volumes of the oxygen. It is prepared by Charles Marchand, New York, for medical use, and is an active oxidizing and antiseptic agent. Glycozone is the trade name of a similar preparation in which glycerine is the vehicle.

THERAPY.—Though less powerful than many other antiseptics, the solution of hydrogen peroxide has a special place in surgery, gynecology, and obstetrics, on account of its powers of decomposing pus and destroying the microbes of suppuration. Being free from all irritating qualities, it can be poured over wounds, injected into sinuses, or into the ear, or used as a spray in ulceration of the pharynx and of the larynx.

It produces a frothing up when it encounters pus, owing to the liberation of oxygen, and the cessation of this commotion indicates the removal of all pus. The surface of the wound or ulcer becomes blanched, but is not injured by the application.

Tubercular and mammary abscesses especially are well treated in this way. In ulcerative tonsilitis, fetid breath, and in some bronchial affections, a spray of dilute hydrogen peroxide is productive of benefit. A spray of this agent is likewise of utility in chronic nasal catarrh, ozœna, and scarlatinal angina. It has been administered, well diluted, in gastric affections, and is said to be very useful in flatulent dyspepsia, heart-burn, catarrh of the stomach and bowels, etc.

In diphtheria and croup its value has been established; a two volume solution is especially recommended in young children as a local application, and particularly after separation of the membranes, in order to remove the odor and disinfect the surface. Internally it is too quickly decomposed in the stomach to render much service as a source of oxygen to the blood. It might prove of value in gastric ulcer.

PEROXIDE OF HYDROGEN IN DISEASES OF THE MUCOUS AND SEROUS MEMBRANES.

By W. S. MULLINS, M. D., HENDERSON, KY.

A paper read before the International Homœpathic Congress, Atlantic City, N. J, June 16–23, 1891.

(Published by the *Medical Era* of Chicago, November, 1891.)

Since the discovery of Peroxide of Hydrogen in 1818 by the French chemist, Thenard, and its introduction to the medical profession by Richardson, in 1858, it has, like most remedial agencies brought forth by the empirical school of medicine, enjoyed great favor for a few years, only to fall into disuse, not because it did not possess virtues peculiar to itself, but from the fact that it was an impure chemical substance, producing

escharotic effects when applied locally, and poisonous effects upon the system when diluted.

What it may do outside of its remedial effects upon mucous and serous membranes, I know not. But the results obtained in diseases of the nose, throat, ear, skin and womb, I have had an extended clinical experience of ten years. It is Marchand's Peroxide of Hydrogen, $H_2 O_2$, that I speak.

I know of no chemico-therapeutical substance of modern use, that brings the physician a more decided and powerful curative action, in its range of indications.

Before entering into its chemical adaptation, permit me to say, by way of caution, that in no instance, and under no circumstances, should the commercial and poisonous Peroxide of Hydrogen be used. Neither should it be applied or inhaled except by means of glass, rubber, porcelain or gold instruments, as its effects are certainly contaminated, if not entirely destroyed, by any other appliances than the ones named.

In acute, subacute or chronic cases of catarrh of the head, when accompanied by an acrid, excoriating discharge, and much sneezing, it will almost certainly control the sneezing and change the nature of the discharge from acrid to bland.

In chronic nasal discharge, either from the anterior or posterior nares, of a yellowish greenish fetid character, with an accumulation of hardened pus and scabs in the nose, it will soften them and cleanse the nose effectually.

In both conditions of nasal catarrh as enumerated to be followed by an application of glycozone on a cotton swab; or, better still, to saturate a small cotton tampon of borated cotton with the glycozone and place it well up each nostril; allow it to remain from one to two hours, cautioning your patient to remove it gently and to desist from any forcible blowing of the nose between treatments.

In granular pharyngitis, produced by smoking apply by means of a spray as follows:

℞ Peroxide of Hydrogen, 15 volumes, ℥ ss.
Aqua distillata, ℥ ijss.

To be followed by inhalations of ozonized vapor. It is a radical cure. Three sprayings and three inhalations in bad cases, and once a day in simple cases, should be used cautioning your patient to hawk as little as possible.

In diphtheria, an early application of copious and frequent spraying of the nose, mouth, throat, pharynx and larynx, administered with a mixture of:

℞ Peroxide of Hydrogen, 15 volumes, ℥ ss.
Aqua distillata, ℥ iij.

When diphtheria is well developed, irrigate copiously and frequently, the nostrils, pharynx, mouth and larynx, with a stronger mixture as follows:

℞ Peroxide of Hydrogen, 15 volumes, ℥ jss.
Aqua distillata, ℥ ss.

The above is the best local application for this most dread disease. It is to be used of course with the indicated internal remedies.

In bronchitis and asthma, administer ozonized vapor inhalations three or four times a day with a solution made as follows:

℞ Peroxide of Hydrogen, 15 volumes, ℥ iss.
Glycerine, ℥ j.

Koch's lymph or Shurley-Gibbes iodine, chloride of gold and sodium, are nowhere in benefiting your consumptive patients, when compared with the following:

℞ Peroxide of Hydrogen, 15 volumes, ℥ ij.
Pure glycerine, ℥ j.

M. Sig. Shake well, inhale for ten minutes, four times per day, in alternation with the following:

℞ Fl. ext. Hydrastis, ℥ ss.
Glycerine, ℥ j.
Kreasotum, *m* vj.
Aqua distillata, ℥ jss.
M. Sig. As directed.

In cases of the many different varieties of eruption seen so often upon the faces of young girls from 15 to 23 years of age, including blackheads, by applying first for about three minutes, to the face, a flannel cloth as hot as can be, wrung out of hot water, then apply by means of a sponge Marchand's full strength Peroxide of Hydrogen, followed by rubbing well into the skin, boracic acid; one to three applications per day, according to the severity of the case, will give you all the reputation you desire as a dermatologist.

CONJUNCTIVITIS.—The following makes a splendid application for catarrhal or granulated conjunctivitis:

℞ Glycerine, ℥ j.
Boracic acid, ℥ j.

Mix well in a mortar and add Peroxide of Hydrogen, ℥ j. Apply by means of a camel's hair brush. Keep well corked.

CHRONIC ULCER.—I have just dismissed from my office, cured, an old chronic ulcer of the leg of fifteen years' duration. It was one inch deep, three inches long and two inches wide.

The only treatment the patient received was the application of Peroxide of Hydrogen, 15 volumes, dropped on carefully night and morning by an ordinary glass dropper, being careful not to disturb the white foam thereon. The whole was then covered by borated cotton, saturated with glycozone, oil silk over this, the leg kept bandaged from the foot to the knee by an Empire elastic bandage—by the way, far superior to Martin's.

During the three months he was under my treatment, he received three doses of sulphur, 47m, ten doses of Arsenicum, 3x, ten doses of Argentum nit., 6x, ten doses of Lachesis, 6x, ten doses Calcarea sulph., 6x, which, in my mind, contributed much to curing the case.

GYNECOLOGY.—In the field of gynecological work, nothing serves me as well and often, nor is there anything in my opinion, to take its place.

ABSCESS OF THE LABIA.—Puncture with bistoury, cleanse with pure Peroxide of Hydrogen, 15 volumes, then by hypodermic syringe inject slowly into the sac, 10 or 15 drops of Glycozone; very little reaction follows, and the results are perfect.

VAGINITIS.—As a vaginal douche, use hot buttermilk; then by aid of the speculum and a small cotton swab on an applicator, apply the pure Peroxide of Hydrogen, 15 volumes, to the entire mucous membrane, including the cervical canal, to be followed at once by an application of Glycozone. Insert into the vagina a roll of cotton saturated with Glycozone, which serves to keep the inflamed surfaces apart. Use the same treatment for vulvitis.

ENDOMETRITIS.—In endometritis, when the discharge is white and acrid, or yellowish, greenish and fetid, apply full strength, 15 volumes, being careful not to wipe off the foam generated, follow by one application of a tampon, or tampons, saturated with Glycozone.

CHRONIC METRITIS.—Copious hot water vaginal douches; then apply full strength, Peroxide of Hydrogen, 15 volumes, followed by tampons of Glycozone, applied every other day. This treatment is worth the consideration of any member of this institute. It is, of course, understood that in all cases the indicated remedy must be used, combined, in the judgment of the physician.

In almost all cases where the Peroxide of Hydrogen is used in the nose or throat, it should be diluted one-third, one-fourth, one-half, three-fourths, and sometimes four-fifths, with pure distilled water.

My rule has been, except in cases of nasal catarrh, accompanied with much sneezing and very acrid excoriating discharge, to use it just strong enough to produce a very slight tingling sensation.

It should be borne in mind that, when used in the nasal cavities, it produces frequent sneezing, and if too excessive, should be diluted still more. If its use on irritated, inflamed or ulcerated surfaces should produce a too free discharge of blood, you may conclude that it needs further weakening.

If you desire a better, quicker and more effective local treatment for carbuncles than carbolic acid, in conjunction with your constitutional remedies, inject pure medicinal Peroxide of Hydrogen by use of hypodermic syringe; a keen, cutting, stinging pain follows. When the pain has subsided, inject by same means, a few drops of Glycozone. I am only sorry my time will not permit me to enter as fully as I would like in explanation of its beneficial use, and speak of its great curative powers in eczematous vesicular eruptions, in vesicular erysipelas, in aphthous and cancerous conditions of the mouth and of its value as an internal remedy in gaseous dyspepsia that will not respond to Lycopodium, China, Argentum, Magnesium, Phosphorus or Carbo veg.

As I have already indicated, I have great faith in the Peroxide of Hydrogen, in the treatment of consumption. Give inhalations on alternate days, of the Peroxide, and Hydrastis, at the same time giving nourishing food, and attending to other conditions. It has helped me to cure several well-developed cases of consumption. The use of the Hydrastis is not original with me, but the plan of alternating the two I have never known to be used by others.

I am loth to leave this, to me, interesting subject. I trust that it may be of benefit to you.

WAX IN THE EARS.

By A. S. TUCKLER, '92, C. M. C., S. F,

(Published by the *California Medical Journal*, San Francisco, Cal., June, 1892.)

A simple method of removing "wax in the ears," is to take Peroxide of Hydrogen, (Marchand's), warm it in a water bath, then with an atomizer spray the meatus for about five minutes. This will soften and partially dissolve the cerumen. An ear spoon will now remove the mass, and to the surprise of the patient, the sense of hearing will be immediately restored. A little more of the spray to cleanse the parts will be all that is necessary. This is a far safer method than the digging-out process, and not liable to perforate tympanum, an experience which the writer has been subjected to.

SOME PRACTICAL POINTS IN THERAPEUTICS.

By JOHN A. LARRABEE, M. D.

Professor of the Principles and Practice of Medicine, Hospital College of Medicine, Louisville, Kentucky.

(Abstract of paper read before the Louisville Medico-Chirurgical Society, Oct. 2, 1891.)

Permit me, in conclusion, to make mention of those therapeutic agents which, during the summer months, have been weighed in my practice and have not been found wanting. In entero-colitic diarrhœa, the so-called "summer complaint" of cities, dependent upon the various micro-organisms, vitiated air, and bad food, salol, naphthaline, carbolic acid (nascent), calomel in minute doses and nitrate of silver, have stood the test. In gastro-enteritis, I have found salicylate of bismuth useful, and in inflammatory diarrhœa (the dysentery of some authors) of infants and older children, Rochelle or Epsom salts in acid infusion of roses with small doses of laudanum. In chronic cases the nitrous acid camphor mixture of Dr. Hope has not failed. For the gastric fevers so common in children, the preparations ammonia-phenique and sulpho-phenique of M. Declat have been used exclusively in a large number of cases with much better

results than any former treatment; also the same for the exanthema. For "whooping-cough," Declat's syrup coqueluche is nearly a specific. In diphtheria, locally, Marchand's Peroxide of Hydrogen and whiskey internally have established their value. A word in regard to the use of the peroxide. It should always be purchased in the smaller four-ounce bottles, protected from the light by blue glass bottles and corked with rubber. That sold by the druggists from large bottles is, in the majority of cases, worthless. It is a very unstable article, and unless it causes immediately a white, foamy reaction when brought into contact with the false membrane, it should be discarded and another lot obtained. I am satisfied that I use it more freely and more persistently than most practitioners. I use mops made by twisting a sort of absorbent cotton upon sticks, using as many as thirty or forty in the twenty-four hours. Such mops will take up nearly a half ounce apiece, and when forced well back into the pharynx reach all parts. The gagging and resistance of the child assists in the distribution of the fluid. As soon as a mop has been used it is committed to the fire. In this way I have treated the worst as well as the milder forms of diphtheria with complete success. I believe that the systematic use of definite, although often topical doses of whiskey, even in children of tender age, to be the surest safeguard against heart failure.

PEROXIDE OF HYDROGEN IN TYPHOID FEVER.

By F. H. WIGGIN, M. D., 55 W. 36TH ST., NEW YORK.

(Published by the *New York Medical Record*, November 28, 1891.)

Having had good results in using Peroxide of Hydrogen locally in diphtheria and tonsilitis, and in infected wounds, it occurred to me, when a case of typhoid fever came under my care, during my summer practice, that this remedy might be beneficial, it being the most powerful non-poisonous germicide we possess.

On August 24th I was called to see Abby M—, who gave a history of having been ill for a week with fever and diarrhœa. On examination I found a characteristic case of typhoid fever with temperature 104½° F.; pulse, 130; rose spots, abdominal pain, tympanites, diarrhœa, and mild delirium. I prescribed one ounce of 15-volume Peroxide of Hydrogen* to eight ounces of water, to be taken every three hours, by the mouth. On the following day I found the patient more comfortable; temperature 103° F.; pulse 112; had had only two movements during the twenty-four hours; less delirium and less pain in head. On the 26th had had one movement; temperature 102° F., pulse 104; less tenderness in abdomen, and pain in the head diminishing. On the 27th, temperature 100½° F.; pulse 98; no movement; tympanites disappeared, and head, though still weak, clearer. On the 29th, temperature 99½°.; no movement. On the 30th, temperature normal; pulse, 84: formed movement. The case went on now uninterruptedly to recovery, with nothing further of interest to report. On the 9th of September I discontinued my visits, the patient being discharged, cured, though weak.

One swallow does not make a summer, but I report this case hoping that some one who has larger experience for treating typhoid fever may take up the suggestion and let the result be known. The remedy is perfectly harmless, easy to take, and apparently was of great value in this case.

---

*Since the above report has been published by the *New York Medical Record*, Dr. F. H. Wiggin stated April 14, 1892, that Marchand's Peroxide of Hydrogen (medicinal) was used by him in this case.

SUBSTITUTION AND ITS ATTENDANT EVILS.

By JOHN AULDE, M. D., 4719 Frankford Ave., Philadelphia, Pa.

(Published by the *Journal of the American Medical Association*, Chicago, Ill., December 5th, 1891.)

The evils attendant upon substitution and sophistication of remedial agents have long been surmised; they have not, however, until recently, received attention at the hands of the medical profession. Increased diagnostic skill, along with greatly improved facilities for the manufacture of medicaments, favor an approach toward mathematical exactness in computing therapeutic results. When these are wanting we challenge the character of the remedy. The question which presents itself is: Has our patient received the true medicament or a base counterfeit? However attractive in theory, it will be found impractical for the medical profession to drift away from the pharmacists and it should be our aim to reward the faithful and bring the guilty to punishment. The friendly bond between the two professions should be honesty, as neither can afford to work independently; there is an interdependence which makes them mutually helpful.

It is said of Lawson Tait, that he has returned to first principles and carries a mill with him, so that when ergot is needed, he prepares it fresh with his own hand. The reliable character of Squibb's ether has been maintained through his business sagacity in having it prepared chemically pure and distributed all over the world in sealed cans, thus precluding the possibility of sophistication or substitution.

The life of a patient suffering from rheumatism may depend upon his being supplied with sodium salicylate prepared by a combination of Merck's chemically pure bicarbonate of soda and true salicylic acid obtained from oil of wintergreen, and yet few pharmacists, even in large cities, pretend to keep either in stock. They are the exception in Philadelphia, and doubtless the same is true of other cities.

Some years ago Dr. Squibb, of Brooklyn, set his seal on Marchand's Peroxide of Hydrogen, by endorsing its character and defending its merits as the most powerful and yet harmless bactericide which could be employed in the treatment of various formidable and fatal diseases. Dr. Robert T. Morris, Dr. Paul Gibier, and other well-known authorities have corroborated his statements from clinical observation, and as a consequence, a revolution has taken place in our methods of treatment in both medical and surgical practice. The efficacy of this simple remedy, its innocuousness and extended field of application, have shed a flood of light upon modern therapeutics, but at the same time there has followed in its train a host of worthless imitations.

The substitution of the commercial for the medicinal peroxide is calculated to work serious injury and destroy our confidence in a most potent remedy. In the treatment of diphtheria, for instance, the commercial product is positively harmful. When death results shall we blame the attending physician or the unscrupulous druggist who substitutes a base imitation for the genuine product? And still, pharmacists who claim to be respectable, do not hesitate to trifle thus with human life. Is it any wonder then, that our mortality percentages are on the wrong side?

Cascara sagrada has been counterfeited and sophisticated until it is almost impossible to secure a reliable preparation of this most useful medicament, although Parke, Davis & Co., the pioneers in its introduction, have adopted every means in their power for the protection of the medical profession. Antipyrin, a patented preparation, has met with phenomenal sales, and possesses distinct therapeutic properties, and as a result, imitations and substitutes are offered to take its place in medical practice. Whether these imitations are better or worse than the original product, I do not care to discuss; neither is it for the druggist to decide. The decision here, as to any special remedy or preparation, rests entirely with the physician, as he alone is responsible for the condition of his patient; no one else, not even the druggist, should be permitted to interfere with his

directions. Substitution is an evil which should be guarded against; it is an evil which must be eradicated, or the entire medical structure will collapse. It is a duty we owe to ourselves and to our patients to look after this unnatural condition of affairs in which we are so vitally interested, and the time is near at hand when a systematic effort must be made with a view to accomplish the desired end.

This subject is commended to the attention of the American Medical Association, with the suggestion that a committee be appointed who shall recommend suitable measures for the protection of the medical profession from the evils of substitution and sophistication on the part of unscrupulous druggists. Shall we have a list?

HYDROGEN PEROXIDE IN PELVIC ABSCESS.

(Published by the *Bacteriological World* of Battle Creek, Mich., December, 1891.)

We have for a number of years made the use Peroxide of Hydrogen (Marchand's) in the treatment of suppurating surfaces, abscesses, etc., with excellent results, but have never observed a more gratifying result than that recently obtained in a case of pelvic abscess of long standing. The abscess discharged by a small opening just behind the cervix uteri, and was very profuse, and extraordinarily fœtid. Our stock of Peroxide of Hydrogen happened to be exhausted at the time, the new supply ordered being somewhat delayed in reaching us, and we at first employed listerine, using it in the proportion of one part to three of distilled water. There was no apparent effect upon the discharge, as regards either quantity or character. The odor continued as bad as ever. When the new supply of Peroxide of Hydrogen arrived, we immediately began using it in the proportion of one part to ten of distilled water, with the result that after the first washing the intensely fœtid odor disappeared entirely, the discharge became healthy in appearance, and diminished in quantity so rapidly that within ten days there was no discharge whatever, except at the washing, and then the quantity evacuated was not more than a dram, when it had previously been several ounces, besides continuous discharge in the intervals between the washings.

After the first washing with Peroxide of Hydrogen, the patient's temperature, which had for several months previously been above normal, fell to normal and has remained at that point since. There is certainly at present no agent known which could properly replace hydrogen peroxide as a disinfectant of unhealthy surfaces.

It would seem to be especially valuable in the treatment of abscesses, the discharges of which, through the relation of the cavity and the lower part of the alimentary canal, usually possess so repulsive an odor as to render the existence of the patient almost unendurable. J. H. K.

DENTAL MEDICINE.

By R. M. CHASE, D. D. S., M. D., Bethel, Vt.

Abstract of paper read before the New England Dental Society, October 29, 1891.

(Published by the *International Dental Journal*, Philadelphia, January, 1892,)

Peroxide of Hydrogen still stands at the head as a germicide, and undoubtedly is one of the best antiseptics yet discovered to annihilate germs, bacteria, or microbes, Charles Marchand's preparation, $H_2 O_2$, is, I believe, the best article in the market, as Peroxide of Hydrogen is very susceptible to certain conditions. To get the best results it should

be kept in a cool place, well stoppered and when required for use as much as desired should be poured from a large bottle into a small receptacle, and only what it to be used should be exposed to the light. When small cavities are to be cleansed it should be injected with a small glass or rubber syringe, as metal should not be brought into contact with it as it quickly destroys its utility. For reaching pulp canals I find a small glass medicine dropper very convenient as by pressing upon the rubber bulb quickly it is forcibly ejected and thus forced into the pulp canal without much trouble. I use a wooden tooth pick reduced in size to still further push it into the root. In treating all ill-conditions of the oral cavity I make it a rule to first rinse thoroughly the mouth with peroxide diluted, and then apply remedies suitable for the same. Much more could be said and undoubtedly will be brought out in this discussion upon this and other valuable antiseptics.

PEROXIDE OF HYDROGEN IN THE TREATMENT OF DIPHTHERIA.

(Published by the *North Western Medical Journal*, Minneapolis, Minn., February, 1892)

In the next chapter, we shall give further details with regard to the treatment of diphtheria, but at this point we feel that we should not close without announcing in the most emphatic terms, that one of the most available agents that we have for the fighting of diphtheria locally, and preventing constitutional involvement is the "Necessary Peroxide of Hydrogen" made by Chas. Marchand, of New York. We would take no chances by using any other manufacture. Charles Marchand was the pioneer in the development of this particular agent, for medical use. It is the "Medicinal Peroxide of Hydrogen which can be depended upon to render diphtheria germs inert as thoroughly as water can be depended upon to put out a fire, or as heat can be relied upon to annihilate the icicle. We believe that every case of sore throat, whether pronounced diphtheria or not, as well as every case of scarlet fever, should have applied to the throat at intervals varying according to the necessities of the situation, the full strength of the Marchand's Peroxide of Hydrogen. It may be used as a gargle, though I am somewhat in favor of flushing the parts with a good syringe, or if this is not available, owing to the objection of the patient, particularly if it be a little one, atomizers are now furnished which act very efficiently, and by using them frequently, the full effects can be secured. It is well to give internally occasionally, teaspoonful doses of the peroxide. It may be diluted or not, as one pleases, All the secretion which has been swallowed will thus be acted upon in the stomach. In addition, there is a general accumulation of fermentative products in the stomach, undigested food, etc. The oxidization of these irritants is desirable. If the patient complains that the application is irritating it may be diluted with one, two or three parts of water.

The position which we took nearly four years ago with reference to the use of Peroxide of Hydrogen in the treatment of diphtheria in a paper read before the St. Louis Medical Society, has been strengthened with the experience which has followed. We would emphasize every material point then made in that paper. If asked "if we were to depend upon only one agent in the local treatment of diphtheria, what would we call for," the response would be emphatic, in thundering tones, "Marchand's Peroxide of Hydrogen," and if we ascertain that any druggist furnished our patient with any other than Marchand's it would be sufficient for us to condemn that druggist and rather than run the gauntlet of his repeating the offense, we would supply the medicament at our own expense.

RECENT INVESTIGATIONS RELATING TO THE PREVENTION OF DIPHTHERIA AND SCARLET FEVER.

By Dr. J. LEWIS SMITH.

Professor Diseases of Children, Bellevue Medical College, New York.

Abstract of paper read before New York County Medical Association, March 21, 1892.

(Published by the *Doctor's Weekly*, March 26, 1892.)

In his report the author entered fully into the pathology and etiology of the two diseases, and dwelt at some length on their differential diagnosis. He related many interesting facts in connection with the contagiousness of diphtheria, spoke of a case of the disease resultiong from the employment of a brush that had been used for swabbing the throat four years before in a similar trouble. Does not believe diphtheria ever originates *de novo*, that it is dependent at all times on the presence of a specific microbe. Damp cellars, the presence of sewer gas and other unsanitary conditions contribute largely to its development. Many mild attacks of the disease are overlooked by the attending physician, and as a consequence it is communicated to others, notably in the school room. He believes in thorough disinfection as a means of preventing a spread of the disease. Does not have much faith in sulphur for this purpose; prefers a strong solution of corrosive sublimate or five per cent. solution of carbolic acid. This should be used freely on walls and floors of rooms where the disease prevails. With the same solution the bedstead and other articles of furniture should be thoroughly washed.

In examining patients suspected of having diphtheria or scarlet fever, the physician should place himself on one side or in the rear and not in front, as is usually the practice. In this manner he avoids the dangers of any diseased matter that might be coughed up by the patient. After such examinations the physician should thoroughly bathe his hands and face in a solution of corrosive sublimate. Exclude everybody but the physician and nurse from the room where a case of either disease exists. While small-pox is thoroughly under control in this city, he doesn't think it possible to gain such control over the two diseases under discussion. The crowded condition of our large tenement houses supplies so much material for their ravages that it is impossible to stamp them out. For the purpose of illustration, the reader related the following experience:

He was called to see the child of a poor woman, living in a tenement house in which there were twenty-seven families. He found a child two years old very sick with diphtheria. Five other children lived in the same rooms; of these, two were away at time of his visit, at school. Just think of the hundreds of children thus exposed! The sick child died two days later.

For purpose of fumigation the author recommended the following:

℞ Ol. eucalyptus,
Acid carbolic, aa ʒ j.
Spir. turpentine, ʒ viij.

M. Add two tablespoonfuls of this mixture to a pint of water and evaporate by aid of a lamp; or cloths saturated with the mixture may be hung around the room.

Does not believe in the efficacy of sulphur fumigation. Microbes in a state of activity may be found in the sweepings obtained from a room that has been fumigated with sulphur.

For the local treatment of diphtheria and scarlet fever, he recommends the following:

℞ Ol. eucalyptus,
Acid carbolic, aa ʒ j.
Ol. olive, ʒ vij.

M. Sig. Apply every three hours.

He also uses Marchand's medicinal Peroxide of Hydrogen one part, to three parts

of water, with much satisfaction. It is prompt in action and quickly destroys the diphtheric membrane.

Dr. Smith's paper was discussed by Drs. Leale, Tyndale and Koplik.

SOME NOTES ON THE VALUE OF PEROXIDE OF HYDROGEN.

By ROBERT T. WILSON, M. D., Baltimore, Md.

Assistant Surgeon to the Hospital for the Women of Maryland,

Editor of *Practice*, Richmond, Va.:

Having read in the January number of your excellent journal, the experience of Dr. S. Potts Eagleton in the use of "Hydrogen Peroxide in Surgical Affections," I am prompted to send you for publication the following:

In January I was called to see a lady in her seventy-six year of age, suffering, as her husband supposed, from an inguinal hernia, but upon careful examination, I diagnosed a deep-seated abscess, and at once ordered hot poultices, to be made of equal parts of flax-seed and corn meal, and applied in the following manner over the skin: White gauze, hot poultice, muslin, oil silk. After a few poultices had been used it was in a condition to be opened. A good incision, giving free drainage was made. The cavity was eight inches in depth. Every day the cavity is syringed with "Peroxide of Hydrogen" (Marchand's) full strength.

The first effect noticed was the rapid oxidation of all purulent matter, which caused the distention of the cavity with the gas eliminated as a frothy yellowish (or yellowish green) bubbling substance. After the oxidation is completed the wound is always in a clean, sweet condition, absolutely free from pus. The cavity is dusted with iodoform, and antiseptic dressings applied. The cavity is gradually healing up from the bottom. In my experience "Peroxide of Hydrogen" (Marchand's) perceptibly diminishes the pus formation. In this connection, I will also state that I am using "Peroxide of Hyrdogen" in a case upon which I operated February 16, and from which was removed a large multilocular ovarian tumor and also an enlarged uterus with many fibroids (hysterectomy). The wound (stump) is in a healthy condition; her general condition is good. Indeed, she is getting along finely. The clamp came away yesterday. The sixteenth day was up yesterday, counting by hours, from the time of the operation. The wound is in a healthy state, and perfectly healed. Hardly a day passes that I am not using the "Peroxide of Hydrogen" in my practice. I send you these notes, hoping they will assist some brother practitioner who may be a reader of your practical journal. Doctors talk with each other about their cases, and I believe they are as much interested in exchanging their experiences by correspondence. We are all mutually concerned.

DIPHTHERIA, LOCAL TREATMENT.

By I. N. LOVE, M. D., St. Louis, Mo.

(Published by the *Medical Mirror*, of St. Louis, March, 1892.)

Judgment should be exercised in this as in everything else. If we select the applications properly they will be sufficiently agreeable as not to annoy or irritate more than they benefit It may be necessary to avail an opportunity for the application; for the patient may be fretful, easily demoralized by being disturbed; we should wait until rest has been secured, until the sensibilities have been obtunded by proper internal medication.

We should bring to bear our ingenuity to the fullest and diplomacy also; if possible ascertain if the child has a fondness for any particular thing. We should arrange a plan by which a reward in prospect may assist in accomplishing our desires.

For its germicidal effect, and also for the removal of the mechanical obstruction produced by the diphtheritic membrane, Marchand's Peroxide of Hydrogen, (medicinal) should be used promptly, in its full strength, but later it may be diluted to one-half strength. As the mucous membrane becomes exposed after the removal of the deposit, by the means just mentioned, it is important to have on hand an application which is soothing, astringent and at the same time as much antiseptic as it can be made.

I have found the following valuable for this purpose.

℞ Katharmon., ʒ ij.
Glycerine, ʒ j.
Aquæ Cinnamonis, ʒ iij. Sig.

The Peroxide of Hydrogen may be labelled No. 1, the formula just written No. 2. The best means of applying both applications is either by a glass syringe or an atomizer made of hard rubber; but in case neither of these appliances are at hand or available, a piece of wire (silver or platinum) of good strength, may be bent, with a hook at the end, in such a manner, as to serve as a probang by wrapping a pledget of absorbent cotton at the point; the application may be made after thoroughly wetting the same with the solution. No. 2 application should follow No. 1, and will be gratefully received by the little patient.

WOUND CLOSURE AFTER THE EMPYEMA OPERATION.

By CHARLES W. AITKIN, M. D., Flemingsburg, Ky.

(Published by the *Ohio Medical Journal*, of Cincinnati, April, 1892.)

Several times the writer has found it difficult to close the wound made in an operation for empyema, especially if the empyema was of any magnitude or of long standing, so that the lung's function was destroyed by compression, and bound down by adhesions.

Mrs. V., æt. 32, of Bath County, Ky., was confined April 20, 1891. The physician in attendance, Dr. Judy, informs me that there was nothing abnormal in the labor. On April 30th the patient had a chill, and for several days the temperature ranged from 103° to 104.5°. After a few days more she began to complain of pain in left chest and shoulder. I saw her on May 24, in consultation with Drs. Judy and Sharpe, and we agreed to aspirate the left chest; over four pints of fluid were removed; two and one-half pints were fair serum, but the last one and one-half pints had some purulent appearance. During the next six weeks the patient was aspirated several times, and over ten pints of sero purulent fluid was removed at these various tappings. At this time a thoracotomy was decided upon. The patient was taken to the Good Samaritan Hospital, and with the aid of Dr. French, with the house physicians, Drs. Buel and Schoolfield, I opened the chest and let out over four pints of pus, the cavity was thoroughly washed with a saturated boracic solution, and the usual drainage and dressing applied, the case was left in Dr. French's care. The flow of pus was considerable for a week, after that time the boracic irrigation was followed by washing the cavity every day with Peroxide of Hydrogen. The quantity of pus rapidly diminished, the patient gained in strength and weight, and in about four weeks more came back to her Kentucky home. Her husband continued washing the cavity with both the boric solution and H_2O_2 until September 12, when I again looked after the case for a week, preparatory to closing the wound, but as there was still an ounce or so of pus passing per diem, it was thought advisable to continue the Peroxide a while longer. This was kept up a month, when the quantity discharged was not more than one-half ounce a day, but to shut off this drainage for twenty-four hours would cause an elevated temperature and general septic symptoms; at this time a

1 to 4000 bichloride solution was substituted for the boracic solution, the $H_2 O_2$ being continued, a slight bloody discharge was thrown out for a few days, but lessened gradually, until November 3, when I washed the cavity with a 1 to 5000 bichloride solution, followed with the Peroxide of Hydrogen for a few days, and let the wound heal without any unpleasant symptoms. The chest was measured during February, 1892, and at auxillary, mammary and ensiform levels, the left semi-circumference was one inch less than the right. The Peroxide of Hydrogen certainly aided very materially in arresting the suppurative process. Marchand's pure Peroxide of Hydrogen was used with but little dilution.

AN INTERESTING CASE OF EMPYEMA WITH SPECIAL REFERENCE TO THE USE OF PEROXIDE OF HYDROGEN.

By H. F. BROWNLEE. M. D., Danbury, Conn.

(Published by *New England Medical Monthly*, June, 1892.)

This case is interesting in many ways; namely, the length of time which elapsed previous to diagnosis, the degree of exhaustion present at that time, the amount of pus evacuated, and finally, the perfect and rapid recovery of the patient.

Previous to his sickness, this patient was a strong healthy man of about 30 years of age, but who for a few years past had indulged in rather frequent dissipation.

About December 20th he was suddenly taken very sick. The attending physician diagnosed pneumonia and began a vigorous course of treatment which he continued for four weeks. The pneumonia did not resolve but the attending physician continued diligently in his efforts to bring about resolution and at the time I saw him first, over four weeks after the beginning of the attack he was supplied with four glasses of medicine with instructions to take a teaspoonful of each every hour. Upon examination I diagnosed empyema and demonstrated it by the introduction of a hypodermic needle.

At this time the patient was in a condition of extreme exhaustion; temp. 105, pulse hardly perceptible, respiration 48. I had him removed at once to the Danbury hospital; a small amount of ether was administered and a resection performed, removing about an inch of the sixth rib in the axillary line. An opening was then made into the pleural cavity and two gallons of pus evacuated. I did not know the maximum amount of pus ever evacuated in a case of this kind, but I can hardly conceive of a greater amount being contained in the pleural cavity of an ordinary man. The cavity was washed out with Thiersch's Sol.. and two large drainage tubes placed in the wound. The patient became quite cyanotic during the operation and required very active stimulation for several hours afterward.

So much for the case itself, now a few words in regard to his treatment and course of recovery. For two weeks the pleural cavity was washed out every day with Thiersch's Sol. The patient slowly improved but his temperature continued to rise every evening to 102 or 103. I then substituted a Sol. Hydrarg. Bichloride 1-5000, This was used about a week when a very active salivation presented itself. During this time the temperature did not run so high but still continued at about 101 to 101½ in the evening. I then began washing out the cavity with Peroxide of Hydrogen and if I had done this before I would certainly have gained considerable time. I used Marchand's preparation, full strength, putting in a considerable quantity of it with a small syringe, then allowing it to escape and finally washing it all out with a weak Borated Solution.

From this time my patient began rapidly to improve. The temperature fell to almost nothing, rarely exceeding 99½ at night. In two weeks from this time the dis-

charge had entirely stopped and I was enabled to remove my drainage tubes, the wound closing in a few days. He gained rapidly in strength and in eight weeks from the day of operation he was able to return to work.

I cannot say too much in praise of Marchand's Peroxide of Hydrogen (Medicinal) in the treatment of this case. It kept the pleural cavity so clean that there was hardly any septic absorption and finally prevented all formation of pus, the discharge ceasing entirely in two weeks from the time I began its use.

THE VALUE OF PEROXIDE OF HYDROGEN IN THE TREATMENT OF CHRONIC GONORRHŒA, ILLUSTRATED BY A CASE.

By WILLIAMS ROBERTS, Plattsburgh Barracks, N. Y.

Hospital Steward, U. S. Army.

(Published by *Journal of the American Medical Association*, Chicago, Ill., April 30, 1892.)

During the past few years, the many articles on new drugs in the treatment of gonorrhœa leave nothing to be desired in this way. The present article contains nothing new, but simply gives the history of a case of chronic gonorrhœa arrested by the use of Peroxide of Hydrogen—a drug that is "going the rounds," probably to be discarded by reason of its being so unhandy and so little understood.

The following case might serve to illustrate the value of Peroxide of Hydrogen, when used under conditions favorable to the preservation of the drug.

J. H., citizen, age 23, contracted a gonorrhœa March 20, 1890, and received the usual orthodox treatment by internal medication up to July 7th, 1890, the date at which the patient came under my observation. I found a subacute gonorrhœa, which was somewhat relieved by urethral injections, including the iodoform et tannic injection of Dr. Otis.

On August 15th, 1890, the patient complained of difficult micturition, and upon examining the urethral canal, I found the following condition:

Size of urethra at bulb, No. 32 French; 4 inches from meatus, a No. 21 stricture, meatus contracted to No. 20.

The constriction at the meatus was relieved by incision, and the stricture readily yielded to gradual dilatation, and on August 31, 1890, a No. 31 sound was passed without pain. On September 1, 1890, an examination of the urethral canal showed the presence of a small ulcer at the side of the old stricture, and stimulating injections were ordered —without, however, relieving the "morning drop." This drop I examined microscopically, and found pus and mucus corpuscles, with small gonorrhœal threads.

On December 10, 1890, I again examined the urethra, and found the conditions about the same. I had tried the whole list of anti-gonorrhœal remedies, including the medicated urethral bougies and the passage of steel sounds, and was somewhat puzzled to relieve the obstinate form which the disease had assumed.

On January 26, 1891, I commenced the use of Marchand's Peroxide of Hydrogen, 15 volumes, and "Glycozone," with the following results: Two drachms of a mixture of:

℞ Peroxide of Hydrogen, ℥ ss.
Aquæ, ℥ iss. M.

was used to distend the urethra, and held for thirty seconds, and then allowed to escape. The decomposition of the H_2O_2 was very active, showing the presence of pus. I then

injected 1 drachm, which was allowed to remain in the canal two minutes. I repeated this procedure t, i. d., and at bedtime injected one drachm of "Glycozone." This treatment was pursued up to February 9, 1891, when there was no discharge, and the patient declared himself cured.

I had watched this case with great interest, for it was the most obstinate one I had ever seen in not yielding to some one of the many lauded cures for chronic gonorrhœa. During seven months the patient had been under constant treatment, to find that a three weeks' course of treatment by Peroxide of Hydrogen terminated the case quite satisfactorily.

The above data might naturally turn the reader's thoughts to the nature of the remedial agent that succeeded where all others had failed.

The Peroxide of Hydrogen was that prepared by Chas. Marchand of New York. The chemistry of this compound together with the pathological conditions it may be applied to, I will leave to the many advertising agents, and will simply state the care with which the preparation should be preserved, for there are factors which utterly destroy the medicinal properties of this valuable agent.

PEROXIDE OF HYDROGEN AS A DEODORIZER IN CANCER OF THE UTERUS.

By GEORGE W. KAAN, M. D.

Surgeon to Out-Patients, Free Hospital for Women, Boston.

(Published by the *Boston Medical and Surgical Journal*, April 7, 1892.)

The value of Peroxide of Hydrogen in washing out sinuses and abscess cavities, has led me to use it recently as a vaginal injection in cancer of the uterus; and with gratifying results.

My cases have been few; but in each the distinctive cancerous odor was noticeable about the patient before the use of the Peroxide of Hydrogen and absent afterwards. In one out-patient case the fetor was so pronounced, that the air of the room seemed saturated with it, the moment she entered. When I last saw her in making an examination no odor was perceptible a foot from the vulva, and only slightly so, close to it. In this case she had used the injection the night before, and a cancerous mass as large as a man's fist, hangs in the vagina, within two inches of the vulva. This case has had palliative treatment in the hospital, by curreting, Paquelin's cautery, and chloride of zinc applications. When she first came to me the disease had extended over the whole anterior vaginal wall; since then the Peroxide of Hydrogen has been used, and the anterior wall is clear. It seems to me that the injections have had some curative action.

Further observation, of course, is nccessary, but bearing in mind what Sir Spencer Wells says of cancer and cancerous diseases, that everything in relation to it is so important that nothing should be thought a trifle, and my material being limited, I venture to state the facts as they appear to me in this case.

Regardless, however, of any value it may have as a curative agent, its use as a deodorizer, and this without substituting another odor for the cancerous one, makes it of inestimable worth in adding to the comfort of the patients, where palliative treatment alone is all that remains.

The method of using has been to take about an ounce of the Peroxide of Hydrogen and an equal quantity of water, warmed by being placed in a pan of hot water, and injected through a soft rubber catheter, so that the injection shall be sure to reach the back part of the vagina. Such an injection once or twice a day has been sufficient.

PEROXIDE OF HYDROGEN AS A LOCAL APPLICATION IN RHUS TOX POISONING.

By N. H. HAIGHT, M. D., Oakland, Cal.

(Published by *The Homœpathic News*, of St. Louis, Mo., July, 1892,)

May 20, 1892, I was called to treat a young lady who was suffering from the effects of poison oak. She had been suffering for nearly a week, and had tried everything that friends had recommended, but continued to grow worse. The left side of her face was so badly swollen that the eye of that side was entirely closed and she was suffering intense itching and pain.

I have never heard of Peroxide of Hydrogen being employed in such cases before, but not feeling satisfied with the treatment that I had used in the past, I decided to experiment on this case. I used Marchand's Peroxide of Hydrogen (medicinal), feeling sure it would reduce the inflammation, and by so doing, it would naturally allay the itching. I used in the following proportions: Peroxide of Hydrogen, 1 part; distilled water 2 parts; applied to the affected parts every hour. I also gave internal treatment of croton tig. 200. The next morning I called to see how the case was progressing, and found her very comfortable, the itching and swelling being very much less. I continued the same treatment, and on the fourth day the case was cured. On another case I used $H_2 O_2$ 1 part, tincture grendilla robusta 2 parts, with equally good results but no better.

MEDICINAL VS. COMMERCIAL PEROXIDE OF HYDROGEN.

By W. B. DEWEES, M. D., Salina, Kas.

To the Editor of the *Medical Herald*, St. Joseph, Mo.:

Professional indifference and professional inactivity are probably the two greatest enemies to our individual progress in the profession. Whereas cultivation will alone fit us individually with that broad-gauge knowledge, the practical appreciation of which marks, with lasting effect, the progress to success. Hence, earnest interest and labor are essential requisites, if we would learn to discriminate between the opportunities presenting, lest we cultivate a flowerless plant or we find weeds instead of roses when we look for success. This is aptly illustrated by the course pursued with regard to the selection of remedial agents by so many of us in the profession, from time to time, and probably in no instance more forcibly than in the use of Peroxide of Hydrogen, ($H_2 O_2$.) In this connection, I feel it but a personal duty to the profession to record my own experience with this agent, having for several years made use of Peroxide of Hydrogen in suitable cases (*i. e.*, chiefly where pus formation was found), with very varying results. Like most of my brethren, I took it for granted that $H_2 O_2$ was the same, so long as it was made by our leading manufacturing chemists, and consequently paid no attention as to the effects of special brands, since I felt confident that my druggist was handling only the products of first-class manufacturers, and could distinguish between the "Commercial" and "Medicinal" articles. The result being that I was not impressed with anything like an absolute confidence in this agent to arrest pus formation. It was not till in October, 1891, when in attendance at the annual meeting of the Mississippi Valley Medical Association in St. Louis, that in a personal interview with Dr. Charles Marchand, of New York, relative to the product of his manufacture, that I decided to give this agent another fair trial, and watching the effects carefully with reference to the different makes in the market. This upon the avowed assurance of Dr. Marchand, there was a most striking difference in the result of using the product of different manufacturers. After almost another year of numerous trials and careful

accurate observation with a number of different makes in the market, I am prepared to confidently endorse all that is claimed for the superiority of Marchand's make. I have used three different products alike in abscesses of almost every description, ulcers, gangrene, cancer, endometritis, specific vaginitis, diphtheria, etc., etc., and in each and every instance Marchand's preparation proved above all, not only the most effectual, but in every way a most satisfactory agent for arresting pus formation, and as a non-irritating antiseptic for general use. Therefore, I most earnestly counsel my fellow co-laborers in the profession to be particular in specifying Marchand's Peroxide of Hydrogen (medicinal) whenever this agent is called in use by them.

RETAINED NASAL SECRETION OR SYPHILITIC RHINITIS?*

By C. E. PERKINS, M. D., Sandusky, O.

(Published by the *Medical Standard*, of Chicago, Ill., Oct., 1892.)

Few cases of acute catarrhal rhinitis are sufficiently severe to compel a patient to consult a physician. When such cases occur the symptoms are severe and the diagnosis difficult.

February 7, a 30-year-old unmarried woman, with negative family history as to tuberculosis, rheumatism or lues, consulted me. There was no evidence of lues. The patient had an attack of measels in 1891, from which she and five other members of the family recovered without results of any kind. Up to the commencement of this trouble she had been exceptionally healthy and robust, having never required the services of a physician.

In the latter part of October last she was taken with what she considered an ordinary cold. There was the ordinary symptoms of acute catarrhal rhinitis, viz.: malaise, dryness and heat of the nose followed by discharge, etc., but she had in addition to all these a severe neuralgia on the right side of the face, which persisted for about a month. Early in December complete stenosis of the right side of the nose developed and the left was partially occluded. At this time there was a swelling across the nose, frontal and nasal pains, and slight epiphora, and there was very little running from the nose and that of a watery character. About these same symptoms continued until just before Christmas when she consulted her physician. I am quite certain that he considered the case as one of nasal syphilis, for he prescribed mercurial inunctions and insufflated iodoform daily. She continued under his care for six weeks. At one time in January she had a hoarseness for one week. The right nostril continued occluded, and the left became completely so, although he was adopting rigorous anti-syphilitic treatment. Not making any improvement she consulted me on February 9. I found her weak and anæmic and somewhat emaciated. There was complete loss of apetite, and swelling, redness and pains across the nose.

These pains were so severe as to interfere with sleep; there was complete stenosis of both nasal passages which caused the characteristic voice of nasal occlusion. This, upon inspection, appeared to be due to thickening and infiltration of the tubinated bodies and septum; they were in contact about one-fourth of an inch from the anterior nares. Having benumbed the parts with cocaine, I introduced a probe wound with cotton, beyond this point of contact and brought out some cheesy matter of disagreeable odor. I was unable to get a thorough view of the nasal cavities at that time, so I directed her to return on the following day; then I found the œdema somewhat subsided, and saw that there was a polypoid enlargement of the little turbinated bodies which acted as a valve to imprison the decomposing material.

*Ohio Med. Soc. Trans. Cond.

This I removed with a cold wire snare, and thus opened up a regular cavity on each side, from which I removed at least an ounce of foul-smelling, cheesy pus. I might add that this accumulation was above the middle turbinateds so far as I could make out. As the parts were thus opened, and the discharge was enabled to make an exit, it gave rise, by running down into the throat, to a very distressing nausea. This I succeeded in relieving by daily removing these secretions and spraying the nares with a solution of Peroxide of Hydrogen ("Marchand's") one to four of water, with a mixture taken internally, of pepsins and bismuth. I also prescribed champagne. Under this treatment the patient soon began to improve. She regained her appetite, the stenosis was relieved, fœtor stopped, and she began to gain in flesh and strength, and on March 4 I permitted her to go home, some ten miles, to report occasionally; she continued to improve until March 24 when she returned complaining of obstruction in the right nasal cavity. Then I removed the last bit of decomposed mucus, which had become very much hardened; since which time she has remained well. I examined her on April 26 and found the nasal cavities as nearly normal as we are accustomed to see them; there is no ulceration nor was there any more perforation of the septum, or anything to suggest that a syphilitic process had been going on.

TREATMENT OF DIPHTHERIA.

By S. H. SHERMAN, M. D., Boston.

Read before the Massachusetts Homeopathic Medical Society.

(Published by the *New England Medical Gazette*, Boston, Mass., October, 1892.)

Intelligent treatment of diphtheria as well as intelligent treatment of other diseases presupposes true conceptions of the nature of the disease. I take it for granted, with the incontrovertible evidence on the subject, that the cause of the disease, diphtheria, is the introduction into the system of microscopic germs, bacteria. Without these germs no diphtheria. The first point of attack is the natural one wherein the act of breathing they would come in contact with the tonsils and soft palate or mucous membrane of the nose. In mild attacks the disease remains a local one, the general system becoming little affected. In the severe cases it extends to almost every organ in the body.

On the supposition that the disease is caused by germs, then to cure the disease, we must destroy or antagonize them. Have we any remedy that will do this? Yes, several; bichloride of mercury is the chief, but doses sufficient to overcome the germs would be dangerous to the patient. We have long been looking for a remedy that would be a potent germ-destroyer and still one harmless to the patient. I believe that remedy is now found. Some four years ago there was sent to me a pamphlet treating of Peroxide of Hydrogen, and the author especially dwelt upon the efficacy as an oxidizer of pus. About this time I had a patient in the Homœopathic Hospital under treatment for cancer of the cervix uteri, and asked one of the staff of the able corps of surgeons what he thought of Peroxide of Hydrogen as an application to the broken down cervix. His reply was that he did not think much of it; and having such great confidence in my friend's judgment, I relegated it to the list of the numberless nostrums that we are invited to investigate. A few months ago my attention was again called to this remedy by a circular of testimonials from men eminent in the profession, and from all schools of practice. These men had proven it to be a safe and certain germicide. I sent for half pound bottle of this remedy and waited for a suitable case on which to test it. It soon came. On August 29, 1891, I was called to Mrs. B—, Athens Street, an unhealthy locality, with cesspool connecting with street sewer directly in front of the house, and the street a very narrow one. Found my patient in bed with history of three days' illness; fever, malaise, sore and swollen throat. On looking into the throat I

found tonsils, uvula, and soft palate covered with the characteristic diphtheritic deposit, and portions of it assumed that dark hue so characteristic of fatal cases, and almost certain to be followed by the septic form of the disease. There was much swelling of the sub-maxillary, sub-lingual, cervical and parotid glands. Deglutition was accomplished with great difficulty, a considerable portion of any liquid swallowed returning through the nose. There was also prominent laryngeal symptoms, croupous cough, etc., showing that the disease had already invaded the larynx. From previous experience in such cases my prognosis was unfavorable, for such cases are generally fatal even in good constitutions, under which head this patient could not be classed; her general health being rather below par. I began treatment by spraying the throat with Marchand's Peroxide of Hydrogen (medicinal) by means of a hand atomizer with hard rubber attachments, as metallic ones are oxidized by the remedy. The effect was immediately apparent on the diphtheritic deposit. I could see dissolution of the membrane about the thin edges, the fibrinous portion contracting into a smaller compass. The patient complained, however, of an extreme smarting sensation in the throat so that I felt obliged to dilute the peroxide with an equal quantity of water which did not seem to materially impair its efficacy. These inhalations or rather sprayings were repeated every two hours, and the time occupied at each seance from five to ten minutes. The dark necrotic condition had changed in twelve hours to the more common grayish-white deposit. From this time on there was a gradual diminishing of the exudation, although there was a persistent tendency to re-appearance of the membrane after it had been removed. The only internal remedies given were arsenicum, bichromate of potash, and glycozone. The arsenicum for the general condition of the system, the bichromate for the croupy or laryngeal complications, and the glycozone to destroy the bacteria, the ptomaines and leucomaines that may have found their way into the stomach, alimentary canal, the absorbent and circulatory systems. It was five days before the throat was free from diphtheritic deposit, and some eight days before the glandular swelling had subsided. There was but a remnant of the uvula left after the sloughing off of the membrane, and a loss of voice from the fcurth to the fifteenth day. The patient was greatly prostrated from the first, and rallied rather slowly under the use of concentrated nutriment and mild stimulants. On the whole, considering the gravity of the case, the result was better than I have before witnessed in similar cases.

Another case worthy of mention in this connection is the following: On March the 31, 1892, was called up very early in the morning to see Master Terrance V. Freeman, aged three years and three months. The father told me the child had been ill for about a week with what he and his wife considered an ordinary cold, but soon after midnight of the present morning he was seized with a distressing croupy cough. On visiting the little patient I found the characteristic croup symptoms were apparent. I made an examination of the throat and found both tonsils covered with diphtheritic membrane. My prescription was bichromate of potash first decimal trituration in half a glass or water, and carbonate of ammonia, one drachm in four ounces of cinnamon water. These remedies were given in alternation every one and one-half hours, and the throat was sprayed every two hours, night and day, with equal parts of Marchand's Peroxide of Hydrogen and water by means of a hand atomizer with hard rubber attachments. This line of treatment was persisted in with alternate remission and exacerbation of the symptoms for five days, when the disease seemed under subjection, and convalescence secured, which continued uninterruptedly until the tenth day, when I discharged the case. This child was naturally a frail-looking child, though it showed a remarkable vitality through this severe and protracted disease. It was given from the first all the nutritious food it could be induced to take, consisting mostly of milk and bovinine. That it was diphtheritic croup was evidenced by the membrane detached and coughed up at different times during the disease. On one or two occasions the child nearly suffocated by the loose membrane being drawn into the larynx or trachea, and subsequently expelled. It is my opinion that this child would have died had it not been for the Peroxide of Hydrogen. It may seem a difficult thing to spray a child's throat effectively for five min-

utes at each seance, as the child will not voluntarily hold its mouth open. I overcome this difficulty by putting a fork-handle between the teeth on one side of the mouth, and having it held by an assistant standing behind the child and holding its head in position at the same time.

I have used this remedy, Peroxide of Hydrogen, in several other cases of diphtheria of a mild form, which would not be of interest to report as they all made satisfactory recoveries, and probably would have under usual treatment.

What is Peroxide of Hydrogen? "The name hydrogen dioxide expresses its composition, and its formula H_2O_2 represents this name. Hydrogen monoxide, H_2O, or water, can under certain conditions, be made to combine with a second molecule or oxygen, the result being a water-like liquid, H_2O_2." This agent is one and one-half times more potent as a germicide than corrosive sublimate and perfectly harmless. It is adapted to all zymotic diseases and suppurative processes. It will follow a pus sinus as a ferret will follow a rat, and be sure of destroying the pus and germs.

I alluded to this remedy some months since at a meeting of the Boston Homœopathic Medical Society, when the subject of Gonorrhœa was under discussion, and the editor of our much valued *Gazette* remarked that there was hardly anything in medical literature concerning it, and that what was known about the remedy came chiefly from the manufacturer. This caused me to look up the subject, and I find an amount of published testimony altogether too voluminous to be quoted.

MEDICAL DEPARTMENT SURGEON-GENERAL'S OFFICE.

Headquarters of the First Brigade Michigan State Troops.

CHAS. MARCHAND, N. Y.:

DEAR SIR—I promised you I would write you further about the Peroxide of Hydrogen (medicinal) manufactured by yourself.

I have cured a great many cases of throat diseases with it, and one case of severe cystitis in an old man of 70, which I had treated with mild solutions of corrosive sublimate for nearly two weeks; he was benefited a little. I then used one-half ounce of your Peroxide of Hydrogen to a pint of boiled and strained rain water, and washed out the bladder thoroughly with this,—the man got up next day and was up every day after that, was well in three days with only one injection or washing, it is worth its weight if used only in cases of cystitis.

Yours truly,

C. M. WOODWARD, Surg. General M. S. T.

Tecumsch, Mich., Sept. 15, 1892.

THE PEROXIDE OF HYDROGEN (MEDICINAL); AN INDISPENSABLE WOUND STERILIZER.

BY GEORGE H. PIERCE, M. D., BROOKLYN, N. Y.

(Published by *New England Medical Monthly*, November, 1892.)

Probably the use most frequently made of this preparation, is in the cleansing of pus cavities, and suppurating surfaces. Any trace of pus remaining in any recess which an ordinary douche will not reach, is at once sought out by the peroxide, decomposed, and brought to the surface, in bubbles of gas. It is useful in cleansing off ulcers, sloughs and gangrenous tissues, chancres, diphtheritic patches, etc., and in cleansing sinuses, and suppurating cavities, such as the pleural in empyæma, and the uterus where

there is putrid discharge, and in cleansing discharges where either puncture or free incision has been made, it is invaluable, clearing out the pus as nothing else can do. There is one class of disease where its local action as a cleanser must be seen to be appreciated; and that is as a disinfectant for gangrenous growths. In a case of extensive epitheliomia of the face, where only pilliative measures were of use, I found the Peroxide of Hydrogen a very Godsend. This case was one of the most foul I had ever witnessed. When I first saw it, the odor from it was so great that it filled the house. It was covered with a cloth into which the discharge had accumulated, thus adding a greater bulk of fetid decomposition; and to add to the horror, for such it was, upon removing the cloth, the surface was swarming with maggots, as large and active, as may be found in a heap of decomposing garbage, and not only on the surface, but they extended deeply in sinuses below the ear where it was impossible to reach them, except as they would come to the surface. My first impulse was to invoke Beelzebub for some patent exterminator, but finding myself left to my own resources, I set about bringing destruction as best I could. As time was of some moment, I removed what I could reach with dressing forceps, then douched with bichloride, 1-1000, then with Peroxide of Hydrogen, 15 vol. strength, rinsed this off with warm water, and douched again thoroughly, with permanganate of potash solution, and finally dusted the whole with beechwood charcoal, which, in addition to acting as an absorbent to the gases, made an appearance very much to be preferred to the ordinary gangrenous appearance. I ordered the cloth to be left off entirely; first, because it only added an additional fetid surface, and second, because the growth was very vascular and would bleed easily on being disturbed. It was dressed morning and night, and henceforth was kept almost entirely free from odor.

The same routine was gone through with each day. First, Peroxide of Hydrogen, which was applied by pouring it directly from the *bottle in which it came*, on absorbent cotton held by dressing forceps, so that it dropped directly on the growth; when immediately a white foam would cover the surface, from the disintegration of pus, gangrenous shreds, blood, etc. Second, rinsing off with warm water, then with permanganate of potash sol. gr. ij., cupful of water, allowing it to drip from a wad of cotton over the surface. Third, dusting with charcoal and leaving it uncovered. An immense lot of Peroxide was consumed in this case, being purchased in ½ lb. bottles, six at a time. This seems to me a very effective means of keeping clean these foul discharging growths of the carcinomatous class; the Peroxide and permanganate, being the most thorough disinfecting combination; and if employed in any case of cancerous growth, where palliation alone must be relied on, will make that life and the lives of those closely associated with it, more endurable. One important fact remains in regard to the chemical properties of the Peroxide. To be effectual it must be kept from the air, tightly corked, in a dark bottle, and in a cool place. It must be used directly from the original bottle. Do not permit the druggist to pour from one bottle to another when dispensing it, else the oxygen will escape, and it will be powerless. If when using, the white foam does not appear, it is because the preparation has lost its strength, and is absolutely of no use, of no more value than so much water, H_2O_2 must be present. It is the additional atom of O combined with the H, that does the work, by giving up that nascent O for the purpose of oxidation. The strength should be 15 volumes. The preparation which I always use is Marchand's Peroxide of Hydrogen (medicinal).

GLYCOZONE IN THE TREATMENT OF GASTRIC TROUBLE.

(Extract from *Doctor's Weekly*, October 29, 1892.)

EDITOR OF *Doctor's Weekly:*

DEAR SIR.—I received your paper this morning and was pleased to see a notice of glycozone. I have used it recently with great success in two cases of gastric trouble

when almost all the useful remedies had failed, and with the happiest results. It is a perfect antiferment, relieving all the distressing dyspeptic trouble and aids digestion better than all the pepsins I have ever seen. Respectfully,

OLIVER D. NOSTRAND, M. D.,
Cincinnati, O., Oct. 22, 1892. 286 West Fourth St.

PEROXIDE OF HYDROGEN AND ITS USE IN EAR DISEASES.

BY WALTER B. JOHNSON, M. D., PATERSON, N. J.

Surgeon to the Paterson Eye and Ear Infirmary.

(Published by the *Journal of the American Medical Association*, October 29, 1892.)

The peroxide solution may be used advantageously in the treatment of mastoid disease after an incision has been made. The action of the remedy upon bone denuded of its periosteum, and even upon carious or necrotic bone, is unique; it causes a disintegration of the molecular particles, and they are gradually subdivided and carried away in the frothy product of the chemical action, until a healthy surface appears upon which the solution seems to have only a beneficial effect. The action of the solution upon dead bone can be readily demonstrated by placing a small portion of necrotic bone in it; the bone in a short time will begin to disintegrate and continue to do so until it is entirely divided into minute particles.

In some of the cases of mastoiditis treated, in which the denuded surface was very extensive, in from three to six weeks the bone would be in a perfectly healthy condition, the discharge of pus controlled, and the subsequent closing of the wound, when allowed, occurred rapidly and was perfectly satisfactory.

In one of the cases, in which for three years any attempt to allow the closing of the sinuses would be followed by an exacerbation of the inflammation, the carious condition was relieved and the opening allowed to close after two months of treatment.

The treatment is very simple and consists in syringing through the opening and into the meatus with a small glass syringe a sufficient quantity of the fifteen-volume solution, at each sitting, to render the pus thoroughly aseptic, then packing the ear and the wound lightly with strips of sheet lint or gauze thoroughly soaked in the same solution, great care being taken to allow the wound to close, although the packing must not be so introduced that it will prevent the free exit of any pus which may be formed during the interval between the dressings. The external incision should be made ample and if the packing does not prevent the opening from closing during the progress of the treatment it must be reopened with the knife. Glycozone has been suggested for use in keeping the wound open, being used instead of the Peroxide in the dressing.

The result of this line of treatment, which has been followed in a considerable number of mastoid cases, has indicated the possibility of a degree of conservatism in the treatment of mastoid disease which is very desirable.

All the cases treated have done well, no deaths have occurred, and in no case was it considered necessary to scrape the bone or to remove any portion of it, while the period of time necessary for the wound to assume a sufficiently healthy condition to render it advisable to permit it to close, did not seem longer than the time which must ordinarily elapse after the operation for thoroughly scraping the mastoid, and was much shorter than the time required before the wound produced in chiseling the mastoid could possibly be allowed to close.

Special care should be taken to keep all the applicators or sprays, used either with the Peroxide of Hydrogen solution or Glycozone, perfectly clean, especially in case of

mixtures of glycerine and Peroxide, which should be made fresh every second or third day, to prevent the possible formation of formic acid; only silver, hard rubber, glass or porcelain, should be used for measuring purposes.

If care is taken to properly keep the solutions, they are perfectly harmless and calculated to be of inestimable benefit to all who use them.

THE OPERATIVE TREATMENT OF FISTULA-IN-ANO.

By LEWIS H. ADLER, Jr., M. D.,

Adjunct Professor of Diseases of the Rectum, Philadelphia Polyclinic and College for Graduates in Medicine.

Read before the Phila. County Medical Society, November 23, 1892.

(Reprinted from the *International Medical Magazine* for October, 1892.)

THE AFTER-TREATMENT.

After the operation of fistula *in ano*, I am in the habit of packing the wound with iodoform gauze, which is left undisturbed for twenty-four hours. This is done to prevent subsequent hemorrhage. A pad of gauze and cotton and a T-bandage are next applied.

The subsequent dressing of the case should be daily attended to by the surgeon himself. The parts should be kept perfectly clean, and the wound syringed with Peroxide of Hydrogen (Marchand's), carbolic acid solution, etc., after which a single piece of iodoform gauze laid between the cut surfaces of the wound will be all the dressing required.

In the after-treatment of these cases I have seen the healing process greatly retarded by the excessive packing of the wound with lint, or delayed by the undue use of the probe. Such interference is to be avoided.

If the granulations are sluggish and the discharge is thin and serous, it will be well to apply some stimulating lotion, such as Peroxide of Hydrogen, or a weak solution of copper sulphate (two grains to the ounce).

The surgeon should be on the watch during the healing process to avoid any burrowing or the formation of fresh sinuses. Should the discharge from the surface of the wound suddenly become excessive, it is evidence enough that a sinus has formed, and a careful search must be made for it. Sometimes it is under the edges of the wound that it commences, at other times at the upper or lower ends of the cut surface, and occasionally it seems to branch off from the base of the main fistula.

Pain in or near the seat of the healing fistula is another symptom of burrowing, and when complained of, the surgeon should carefully investigate the cause.

After an operation for fistula, the patient's bowels should be confined for three or four days, for which purpose opium is usually given. At the end of this time the bowels may be opened by the administration of a dose of castor oil, and so soon as the patient feels a desire to go to stool, I am in the habit of ordering an enema of warm water to be administered, which has a tendency to render the fæces soft and fluid and hence to make their passage easier. The patient should be kept in a recumbent posture until the fistula is healed and until the bowels are moved; the diet should be liquid such as milk, beef-tea, and broths. The time required for a patient to recover after an operation for fistula *in ano* varies with the extent of the disease. In an average case it will be necessary to keep the patient in bed for two weeks, and confined to the house for a couple of weeks longer.

ABSTRACT FROM A TREATISE ON DISEASES OF THE RECTUM, ANUS AND SIGMOID FLEXURE.

By JOSEPH M. MATTHEWS, M. D.

Prof. of Principles and Practices of Surgery, and Clinical Lecturer on Diseases of the Rectum; Kentucky School of Medicine, Louisville, Ky.

Page 188.—After the operation is performed, Dr. Matthews writes as follows:

I then syringe the cavity out freely with a solution of bichloride of mercury (1 to 5000). Then a tent made of iodoform gauze is introduced into the cavity, just as much as it will hold. After the expiration of twelve hours, I withdraw the iodoform gauze and allow any accumulation to pour out freely. I have used the bichloride solution here first, because I believe it to be a good antiseptic and at the same time a good stimulant to the cavity. However, afterward I substitute another agent—viz., Peroxide of Hydrogen. Of course our great object in dealing with cavities of this kind are twofold: First, to stop suppuration; second, to heal the diseased structure. For preventing suppuration, we have chiefly relied upon solutions of bichloride of mercury and carbolic acid. Every surgeon is well aware of the fact that dangers attend the use of carbolic acid in the treatment of suppurating diseases, and the too free use of the bichloride of mercury in large suppurative cavities might not only cause too much inflammatory action, but also produce a general effect upon the system which would be shown in ptyalism. We have in a strong solution of Peroxide of Hydrogen a substitute for these two without any of their attending dangers. Undoubtedly the best preparation of this agent is Marchand's Peroxide of Hydrogen (medicinal). His fifteen-volume solution will retain active germicidal power for many months, if kept tightly corked in a cold place. It can be used, of course, in any strength that the surgeon desires. Marchand has devised a hand atomizer and ozonizer for the purpose of using the agent in an easy manner.

The abscess cavity is injected once a day with this agent, either pure or diluted with water, from three to ten parts, and each time the tent of iodoform gauze is pushed gently into the external opening, but not so as to fill the cavity. As the healing process goes on, a less amount of gauze is used. If large rectal abscesses are treated in t' is manner, the number of cases of fistula will be greatly reduced.

SOME OF THE USES OF PEROXIDE OF HYDROGEN IN GENERAL SURGERY.

By THOMAS H. MANLEY, M. D., New York

(Published by the *New England Medical Monthly*, Danbury, Conn., Dec., 1892.)

Since Marchand placed upon the market a pure, unadulterated Peroxide of Hydrogen, and Morris, of New York, called attention to the marvelous power of this preparation as a deodorizer, the profession have very generally employed it in such pathological conditions as will enable us to apply it directly to the diseased surfaces. In general medicine it has been employed on an extensive scale in the phagedenic, sore throat of malignant scarlatina, diphtheria, and other maladies.

In surgery, it has been particularly recommended in non-malignant, suppurating sores.

Since it has now come to be very generally known, that with very few exceptions all chemical solutions of sufficient potency to kill germs, possess such irritating properties as to interfere with healthy cellular proliferation, there has been a demand for

something which might nullify germ activity, and at the same time in no way interfere with the recuperative energy in the histological elements. In a large class of cases Peroxide of Hydrogen seems to provide this want.

In the Harlem Hospital and Dispensary service, the Peroxide, Marchand's medicinal, is largely employed; and, in appropriate cases, with better results, than with any other agent.

It seems to possess a special affinity for the lethal elements, in all suppurating processes, which tend to run into chronicity.

We have largely employed it in those cases of fistular sinuses, so seriously resulting from suppurating lymphatic glands in children and adults; as well as in those buboes which are sure to heal and discharge, for a long time, a sero-purulent matter.

The only class of sinuses in which its use should be employed with caution, are those in which the fistula extends into a lesion in the osseous elements.

In many cases, in which a long, deep rent has been made in the tissues, in strumous subjects, in which healing processes are delayed, its employment is very satisfactory in effecting primary union. Now, whether it acts as antiseptic; or, by imparting fresh vitality to the cells, is a question by no means settled.

When we use it, it should be applied in such strength as different cases require. In foul-smelling, copiously discharging processes, it may be used in a concentrated form, while in milder cases, particularly in children, it should be diluted.

In my own private practice none has given me so much satisfaction as that manufactured by Chas. Marchand, and as we have seen in Dr. Squibb's "Ephemeris," for this year, the preparation seems to be regarded by chemical analysis, to maintain a high and uniform standard of strength and purity.

INTESTINAL OBSTRUCTIONS.

DIAGNOSIS AND TREATMENT.

By FREDERICK HOLME WIGGIN, M. D., New York.

Attending Surgeon City Hospital, Blackwell's Island.

(Extract from the *Medical Record*, July 23, 1892.)

Irrigation of Abdominal Cavity.—As to the irrigation of the abdominal cavity, the practice inclines toward the use of plain water or so-called natural salt solution, six-tenths per cent. My own experience and observation lead me to believe that many of the complications following laparotomy can be traced directly to the use of chemical solutions during the operation, either for irrigation, for disinfecting the hands of the operator, his instruments or sponges. In a case where the abscess is circumscribed, it is bad practice to irrigate, owing to the danger of infecting the general cavity. In all aseptic cases irrigation should be avoided. When irrigation is necessary, while the normal salt solution is best, still, in some cases, I believe this may be followed by a second douche containing a small quantity of hydrogen dioxide, I have used it for several years in all kinds of surgical work, and once in the general abdominal cavity, in a case already alluded to (the patient dying shortly after the operation, no deduction can be drawn from it), and where pus was present, have found it in proper solution more efficient and less irritating than anything else. In some of the New York hospitals it has been used for irrigating the pleural cavity in empyema, and it has proved satisfactory. I have been unable to find any record of a case where this compound has been used for irrigating the general cavity. In the letters already referred to, Dr. Senn says: "Have used the hydrogen dioxide in cases of limited peritonitis, and should not hesitate to use it in the diffused form "

Dr. Mann says, "And I have never used hydrogen dioxide in the general cavity, but have applied it to the cut ends of tubes, holes in the intestines and bladder, etc., with good results."

Dr. Clement Cleveland says, "I have never used the dioxide in the peritoneal cavity. I have used it pure in the uterine cavity, in puerperal septicæmia, with excellent results."

Dr. Robert T. Morris writes, "In localized septic peritonitis, where I have occasion to expose directly the affected locality with retractors. I pour in the $H_2 O_2$ in full strength and without any warming whatever. After allowing it to remain for a minute or two I sponge out and repeat, leaving the second lot for five minutes, sometimes not removing it all, but putting my gauze wick down into it, and allowing it to be sucked up at leisure by the drainage wick. I have used it twice only in general septic peritonitis. One of the cases was an appendicitis (perforated), with the patient moribund at the time of application of the $H_2 O_2$, I poured in a very large quantity, enough to bathe all of the abdominal organs; a very little hot water was poured into the peroxide just at the moment of using it, to 'take the chill off.' The peroxide was then siphoned out and the patient was made very much easier by the treatment, although he finally died. The other patient died too. The case was one of general septic peritonitis that had gone on to suppuration after removal of a gangrenous ovarian cyst. The post-mortem examination showed that the $H_2 O_2$ had cleansed the cavity beautifully, and although my patient died, I nevertheless obtained the impression that one has after such observations, that the $H_2 O_2$ was very useful, and evidently harmless in itself. There are lots of cheap peroxides on the market that contain acids, and such would be harmful." (See article by Robert T. Morris, page 72, also article by Dr. H. F. Wiggin, page 92.)

PEROXIDE OF HYDROGEN.

By L. C. SCHUTT, M. D., Toledo, Ohio.

(Published by the *Toledo Medical Compend*, December, 1892.)

Referring to Peroxide of Hydrogen (medicinal) Dr. Schutt writes as follows:

Diphtheria.—As a local application in this disease, Marchand's Peroxide of Hydrogen (medicinal), can be used full strength, but in the majority of cases it is better to dilute it with from 20 to 30 per cent. of water. It may be applied with a brush or atomizer, and used as often as the severity of the case may require.

Pitting of Small-Pox.—The topical application of peroxide of hydrogen or glycozone is very beneficial. It allays the irritation of the skin and lessens the pitting and force of the disease.

The local application of the peroxide in hay fever has proven very beneficial when mixed with an equal quantity of water and glycerine. It should be used at the very outset of the disease.

As a Cosmetic.—When applied to the face it will make imperceptible a dark downy growth on the face when the hairs are numerous and fine and cannot be removed by electrolysis. It should be applied several times a day with a camel's hair brush until the hairs are thoroughly whitened and after that as often as necessary. The grease which adhers to every hair should be removed by applying a solution of powdered borax in water.

In deep cuts and ulcers you will find the greatest benefit from the use of peroxide of hydrogen.

I will report one case in which very decided benefit was obtained from the use of this preparation.

Mr. P. O. H., a young man 23 years old. He received an injury to his right hip, while helping to unload a cannon. It terminated in hip-joint disease, which confined

him to the house for more than a year. Finally suppuration occurred, leaving him with two sinuses and several openings. All kinds of washes were used but the pus kept up. At last I commenced treating it with peroxide of hydrogen, using it pure and diluting it with water. We used it every day for seven months at which time all discharge of pus had stopped and the openings nearly closed. I am sure no other bactericide could have been used so long and with such good results, without injury to the parts or general system.

SURGICAL MEASURES OF RELIEF IN STENOSIS OF THE UPPER AIR PASSAGES.*

BY THOMAS H. MANLEY, M. D., NEW YORK.

During the past ten or fifteen years the discussion of the etiology, pathology and surgical treatment of stenosis of the ærial passages, particularly in children, has occupied an important position in medical literature, both home and foreign.

Yet with all that has been written on this subject, it must be admitted that the profession is in anything but accord on the most appropriate measures, either prophylactic, or remedial, in those maladies which jeopardize life through impending asphyxia or apnœa.

It was hoped with the application of the invaluable apparatus of Dr. O'Dwyer that, at last, the most formidable obstacles in the way of treatment had been forever removed; that the scalpel and tracheal tube might be laid aside, and that hereafter relief-measures would be as prompt and bloodless as they were efficient and permanent.

But it was soon discovered that, like every other relief-measure, intubation has its limitations; that there is a considerable proportion of cases in which the perforated, laryngeal plug may, when introduced, destroy every possible prospect of recovery. Our aim should be in all cases, to occupy a middle ground; as neither too zealous partisans of the one, nor uncompromising foes of the other. Some would impose so far on the credulity of their brethren as to have them believe that intubation is the sovereign remedy when applied early and skillfully. Others there are, who have cast it aside altogether. Of this latter I saw a practical proof in the Princess Augusta's large ward for children in the Frieriechshal-Hospital in Berlin. Here their experience with intubation had been so unfortunate that they had discarded it altogether. Hence, while we all agree that divulsion of the laryngeal chink through the buccal cavity occupies an important place in surgical therapy, it constitutes but one of our resources. In the controversial side of the question, it is not my purpose, at this time, to enter.

The conditions that give rise to a mechanical impediment to respiration in the upper air passages are dependent on inflammation—infectious, specific, neoplastic and traumatic.

The fundamental principle underlying every phase of treatment, of whatever description instituted, is to secure a patent air-passages until nature has removed the barriers to normal respiration. To most safely accomplish this purpose we must depend chiefly on three agencies: First, on constitutional treatment, which is more or less applicable in all phases of laryngeal stenosis; second, on local medicative measures, third, on surgical invention.

As the surgeon's aid is seldom invoked until the time is past for internal medication, only the second and third of these agencies will be considered here.

For the first of them, there are but two substances with which I am acquainted, that possess such properties as will commend them in the majority of cases. I may add

---

*Read before the Section of Pædiatry, Academy of Medicine, New York, Feb. 9, 1893. Published by *The Medical and Surgical Reporter*, of Philadelphia, Pa., Feb. 25, 1893.

parenthetically, that unless the patient is on the border line of the moribund state, local measures should be pressed with energy for a short time before surgical intervention is resorted to.

Mercury pre-eminently occupies the first position. First, because of its well known power as an antiseptic agent; and secondly, for its effects on the general system when taken up by absorption through the mucous membrane. It may be administered by fumigation—when calomel is incinerated; or through the spray—when we employ the bichloride solution of a strength varying from 1:500 to 1:3000 according to the age of the patient, its impression on the system, or the urgency of the symptoms. The objections to the employment are the possibility of ptyalizing the patient or salivating the nurse or attendant. Besides, though this agent possesses active bactericide powers, it it not a deodorizer.

In many cases of an infectious or gangrenous character extending into the larynx or trachea, the ideal solution is one which is gentle and simple in its application, but energetic in action; one best tolerated and possessed of the greatest affinity for the necrotic residue of diphtheritic or other inflammatory products. To attain this end there is nothing with which I am familiar, which may be administered so continuously as the peroxide of hydrogen medicinal.

An eminent medical authority* has recently warned the profession not to use this agent in throat troubles, because, as he alleges, it may cause diphtheria itself. This view is totally at variance with clinical experience and with our knowledge of the fundamental etiology of the disease; though we must concede, if an inferior quality be used, or it is employed in too strong solution, an exudate is formed, but this exudate must be rather attributed to its injudicious employment than to any inherent power of the drug to produce such exudate. In all cases, when we employ this gaseous agent we should be assured of its purity and standard strength; hence it is my custom to employ Marchand's medicinal, alone, when it can be secured. The inhaler which goes with this medicament, in my hands, in the hospital and elsewhere, has served an admirable purpose in pharyngeal or laryngeal affections. "The immense number of unsophisticated medical men all over this country whose anxiety is for new and effective remedies, and who are stimulated by these miserable surroundings"† may be safely trusted with the best and safest in the matter of chemical solutions, as in the selection of wines, meat juices, proprietary medicines or other pharmaceuticals.

When it appears futile to persist further with local applications, and the symptoms of approaching asphyxia are urgent, the time has arrived for prompt surgical interference. It is well known that in tracheotomies the results following, depend mainly on two factors, viz: the violence of the constitutional infection, and the manner in which the operation for relief is performed. The former is beyond our control, but not so with the latter. For, with the aid that modern surgery has placed within our reach, the technique of opening the air passages above the sternum has been greatly simplified. The elder Gross regarded tracheotomy as one of the most formidable operations known to surgery.

The dangers immediately connected with the surgical technique of a tracheotomy are:

(1) Those which have reference to pulmonary anæsthesia.
(2) Hemorrhage.
(3) Shock.

With every one who has ever administered an anæsthetic, or seen it given to one with an embarrassed respiration, it is needless to rehearse here the difficulties in the way. In the first stage of anæsthesia the little one struggles and strangles so that the anæsthetizing agent must be given intermittenly. As the second stage or anæsthesia is reached a deep cyanosis sets in. With the accession of the third stage the corneal reflexes are

*Dr. A. Jacobi, Note on Peroxide of Hydrogen. *Archives of Pediatrics*, Dec., 1892.
†*Ibidem.*

paralyzed and the asphyxia deepened so that the operator is warned to hasten on or death will quickly end the scene. But our patient is a child, and it is a matter of common observation that children, proportionately to their age, take a large quantity of anæsthetics and come from under their influence very quickly. Hence, under the circumstances here considered, the circulation already toxemic must be further super-saturated with another lethal agent, and along with this, the fear of the patient's returning consciousness hurries the surgeon on with the procedure in which it is always imperative to proceed with caution and deliberation. Anæsthesia is, it must be admitted, one of the positive dangers in opening of the trachea.

Without question the next difficulty in this operation is profuse hemorrhage. Here the escape of blood is dangerous in a dual capacity. First, through mortal anæmia, and next through leakage into the trachea inducing fatal asphyxia, or by being sucked into the bronchial radicles and causing septic pneumonia. As the trachea in the child is deeply lodged beneath an immense network of blood vessels which lie immediately under the skin, the deep cervical fascia and over the thyroid isthmus, the division of the deeply situated parts is not unlike the splitting of a saturated sponge. Nevertheless, if ample hæmostatic precautions are observed, after the first gush in penetrating the deep cervical fascia, it will be slight and neither will annoy the operator nor endanger the patient.

In May, 1890, Paul Reclus, in the *Gazette Hebdomadaire*, published his remarkable contribution on "Cocaine Analgesia." The year preceding, Prof. W. W. Dawson had presented an able essay entitled "Bloodless Tracheotomies."* Although Reclus reported more than two hundred cases in which he had successfully operated under cocaine, he mentioned none for tracheal stenosis. After I had carefully read the essays of both the Ohio and the French surgeons, it occurred to me that, by a combination of both expedients, the ideal tracheotomy operation was at last secured. Within one month of the publication of Reclus' essay I was favored, at the Harlem Hospital, with an opportunity of testing for the first time, and estimating the full value of, a surgical procedure which I have designated "Tracheotomy by the Reclus-Dawson Method."

I, personally, claim nothing for myself in connection with this invaluable device, save in evolving a new operation by a combination of analgesia with hæmostasis, and priority in being the first to operate by this method and to publish its history and technique. This I did in the *Journal of the American Medical Association, 1891.*

Though I have had four opportunities of employing it in the adult, up to this time I have had but one child, an infant, on which to test its merits. This was a patient of Dr. Murray's, but two months of age, which was suffering of submucous tubercular abscess of the larynx. All my patients recovered.

In a nutshell, its technique is as follows: Rigorous antisepsis; a one per cent. solution of hydrochlorate of cocaine hypodermically administered after Reclus' plan; the drug hypodermically employed, never to exceed the maximum dose by the mouth. I always douche the surfaces of the integument, either by a spray from a siphon of carbonated water, or else pure cold water from a height which accomplishes the same end, before I make the first incision. The cocaine injection serves a triad purpose in these cases; first, as an analgesic; secondly as a cardiac stimulant, and thirdly, as a styptic or hæmostatic. In these cases which we tracheotomize for infectious or acute inflammatory obstruction, and in which patency of the opening is but a temporary expedient, I am confident that the best tracheal tube is none at all. In this infant of two months, by passing two sutures through the divided tracheal walls on either side an ample air vent was effected.

I am confident that as the new procedure is more generally adopted, tracheotomy will regain its lost ground. For by it, when it succeeds, deglutination is not interfered with, perfect drainage is secured and the inconvenience and danger always attendant on tubation of any description, is obviated. It is unnecessary to add that by it, too, the dangers of collapse and shock will be minimized.

---

*Jour. Amer. Med. Ass'n., July 13, 1892.

DISCUSSION ON DR. MANLEY'S PAPER.

(Reported Stenographically by J. J. Sullivan, M. D.)

Dr. Chaffee, of Brooklyn, said that he believed that if Dr. Manley's method of using cocaine was adopted, it would make tracheotomy more popular than ever before, and operators would not have the dread of the operation as they have at the present time. He was a great admirer of intubation but he never regarded the two operations of tracheotomy and intubation as direct rivals.

Dr. Stewart was very glad to hear Dr. Manley stand up for mercurialism in the treatment of diphtheria. He always found that the further he departed from the use of mercury in the treatment of diphtheria, the more apt the patient was to die, and he has never seen a case of ptyalism in a child with true malignant diphtheria from the use of mercury. He still used bichloride in combination with Marchand's peroxide of hydrogen (medicinal) with the best results possible.

He used a five per cent. solution of Marchand's peroxide of hydrogen in water, and about 1-3,000 of the bichloride. He also gave the same drug internally and has had much better results than formerly with the old, iron, chlorate of potash and like remedies.

Dr. Fruithight said he would like to bear testimony to the good results he has secured in the treatment of diphtheria by calomel fumigation. He has used calomel fumigations recently in three very grave cases and they all recovered. He has used as a local remedy Marchand's peroxide of hydrogen.

Dr. Stanton has been using bichloride of mercury in the treatment of diphtheria for the past four or five years, and he regretted to say that his experience was disappointing. So far as local treatment is concerned, he has used a spray of Marchand's Peroxide of Hydrogen, and he has never found any reason to regret its use. He has read the criticisms of Dr. Jacobi, and he never experienced any such results as he has seen from the use of Peroxide of Hydrogen. He, Dr. Stanton, uses a fifteen volume strength of the Peroxide, and dilutes it one-half; spraying the affected parts every two hours with it.

Dr. Dillon Brown stated that his experience with the Peroxide of Hydrogen has been the same as Dr. Jacobi's, but he considers this condition referred to, to be due to the irritating effect of the acid in the Peroxide of Hydrogen. He still believed that Peroxide of Hydrogen was the best remedy they had in the treatment of diphtheria.

The way to overcome this acrid condition of this solution was to add to the fifteen volume solution, sufficient ammonia to make it neutral, or if they wished to dilute the Peroxide, to dilute it with lime water which does not in any way effect its chemical properties, and the results are just as good.

They do not then get those lesions that affect the mucous membrane as described by Dr. Jacobi. So used, he considered the Peroxide of Hydrogen the best remedy they had in the treatment of diphtheria. The acid he spoke of contained in the solution was simply an impurity which it was expensive to get rid of, and consequently more profitable to leave in.

Dr. Manley in closing the discussion said that in reference to the question of Peroxide of Hydrogen increasing the area of the membranous exudation it cannot be denied that when they sprayed the throat with Peroxide of Hydrogen there was a membrane at once formed, that is, if they called a deposit of mucus coagulated by the acid of the Peroxide of Hydrogen, a membrane, they had such a membrane every time they employed the Peroxide, as they would have a membrane if they were to use a strong solution of nitrate of silver, but nothing more.

He regarded intubation as a wonderful thing, but he would emphasize the fact that it had its limitations. In intubating the larynx, the great difficulty was the mechanical one in getting a tube that will adjust itself to the lumen of the passage. These passages are very irregular in form and outline, and if the tube did not fit, it acted as a foreign body, giving rise to irritation and necrosis.

APPENDICITIS.

By ROBERT T. MORRIS, A. M., M. D., New York.

A Clinical Lecture at the New York Post-Graduate Medical School, February, 11, 1893,

(Reprint from the *New England Medical Monthly* for April, 1893.)

Gentlemen:

"How many appendicitis patients have you in there?" I asked when driving by a grave-yard in company with a physician, one day last week. "Two of my own and four that were seen in consultation," he said. "I was just counting them up when you spoke, and I feel that none of them would be there if they could have had timely operations."

If the grave-stone of every appendicitis patient who need not have died were to give out a light, every cemetery in the land would shine at night.

Before removing the appendices from our two patients this afternoon, I will show two fresh specimens which illustrate widely different types of the disease. This first wicked looking specimen I removed on Tuesday from a patient who was in the eleventh day of an acute general peritonitis. The patient was then moribund. To-day he is recovering. There is always a question as to the policy of operating upon such patients but accumulative experience enables us to attack cheerfully the most vicious of cases.

Up to the year 1890 we lost a good many appendicitis patients after operation, but from the vast mass of recent data, we have reduced a few apparently trifling changes in technique that give our patients chances for life; changing the whole outlook of these operations, just as ideas about peritoneal operations in general underwent a transformation a very short time ago.

Again let us look at this dark and ragged specimen which has been slit along the free border to show the interior. A stricture at its middle occludes the lumen.

The stricture is a hieroglyphic in high relief and we can read it. It says that the patient once upon a time had appendicitis, that a bit of mucous membrane was murdered and cast out into the bowel; and that the resulting ulcer filled the gap with a collar of connective tissue.

When the stricture contracted it entrapped two fecal bullets in the distal half of the lumen and left the appendix loaded. Last week the bullets went through the wall and shot the patient.

The physician who asked me to see the case was doubtful about its being one of appendicitis, because there was no particular pain at McBurney's point and because there was no dullness on percussion in the right inguinal region. Nevertheless, he remembered my earnestness in insisting that acute peritonitis in adult males and in children of both sexes was a fire alarm calling the surgeon to come quickly and put out the appendix. The reason why there was no particularly tender spot and no inguinal dullness was because the abdomen was tense and shiny with acute general peritonitis and because one of the abscess cavities in the inguinal region was stretched with hissing, stinking gas. How did we find it out? We looked! When I had placed the patient in Trendelenburg's position and had evacuated a large amount of pus and gas, one of the consultants thought we had done enough. After sterilizing the abscess cavity with peroxide of hydrogen (Marchand), I proceeded to separate all adhesions and finally came to a large secondary cesspool of pus, containing the riddled gangrenous appendix.

Now the patient can live.

Don't forget what happened after it was thought advisable to rest content with draining the first abscess.

A word about opium. I am about through with opium in any form in peritonitis of any sort. Mr. Tait, I believe, says that he has banished it from his pharmacopœia altogether.

My two definitions for opium in peritonitis are these:

1. A drug which stupefies the physician who gives it more than it does the patient who takes it.

2. A drug which generally relieves the distress of the physician who without it would be compelled to do something rational for the patient who has put confidence in him.

Opium and peritonitis breed a vampire which lulls the patient to sweet repose while his life is being sucked out, and the doctor is looking the other way. Remove the cause for peritonitis when you can. Remove the products of peritonitis when you can do nothing better. Avoid as carefully as possible the teachings of our honored preceptors who did the best they could in the days when symptoms were treated and not prevented.

An abdomen swollen with peritonitis looks to me like a great big ripe boil and needing the treatment that boils usually receive.

Figure 1.

Longitudinally split appendix. Perforated by concrements. Gangrenous.
1. Point of exit of fecal bullets.
2. Old stricture occluding lumen.
3. Hard, dry fecal bullets.

Here is the second appendix. It is apparently normal as you observe, excepting at the tip where it is rough and clubbed. I removed it last Thursday from a young man who three weeks ago was laid up for a week with colic and vomiting, associated with swelling and tenderness in the right inguinal region. He found that "something pulled" whenever he made exertion, and the tender spot remained. The roughness at the tip shows where adhesions fixed the tip of the appendix to parietal peritoneum, and that is

what caused the pulling and the tenderness. His appendix is what I call a "growler."

The first patient of to-day's clinic is ready. The history is briefly this: Shortly after childbirth, fifteen years ago, agonizing colic, bilious vomiting, rigors, febrile reaction, a lump in the right inguinal region. Acute attacks have recurred several times and of late years the lump has been permanent. Intestinal obstruction has lately become a serious feature of the case. My analysis of her symptoms is this. At childbirth a foreign body in the appendix was compressed until it injured the mucous tube and allowed bacteria to enter the adenoid tissue. The colic means that the intestine was trying its muscles on disagreeable company, which needed to be forced away. The colic is sometimes awful, and always unnecessary, if the surgeon is near. Bilious vomiting means that absorbed septic matter was being excreted by the liver, and the ptomaine bearing bile on reaching the duodenum mischievously reversed the lever of the duodenum and flooded the stomach with bile. A reversed peristalsis caused by certain irritants is familiar to some of you as a laboratory experiment. The rigors and the febrile reaction meant that microbe products were poisoning sympathetic nerve centers. The inguinal lump indicated that local peritonitis had welded several structures together in order to protect the peritoneal cavity against the company that the intestine was trying to rid itself of. The intestinal obstruction means that adhesions have contracted.

The peritoneal exudates make a lymph cake. Sometimes this lymph cake is a simple pound cake, that the peritoneum digests as soon as the appendix has been temporarily appeased. Sometimes it is a cream cake, and the pus if not absorbed, finds its way into a large vein or into the ureter or into the bladder, or somewhere where no reputable surgeon would think of making an opening. Nature tries to do some surgical work but she is a good deal more of a success at making lilies.

Then again, we are never sure when nature prefers to save the patient or to encourage a particularly fine bed of microbes. It is a pretty conceit for us to assume that she cares more for one specimen of *homo sapiens* than for a whole lot of *streptococcus pyogenes aureus*. The presence of a lymph cake in the vicinity of an appendix vermiformis is the piteous signal of the peritoneum for help, and the sympathetic surgeon must respond instantly, bearing in his hand the little wand that will vanquish the witch. A diseased appendix which is not walled in with lymph cake needs equally prompt attention by the surgeon.

Under procrastinating medical treatment by the good physician, a surly appendix may often be coaxed back into its hole where it mutters and sulks and prepares for another spring at the patient.

Our patient is now placed in Trendelenburg's posture. The reason for that is, because we do not want to play a jack-in-the-box game with intestines, but prefer to attend strictly to business. Another reason is because we wish to have pus run out instead of running in. Another reason is because one look at the involved parts is better than two feels and four guesses. The side of the appendix is exposed through the customary lateral incision. The lump is found to consist of a heterogeneous mass of omentum, mesentery and ileo-cæcal intestine, and firmly welded together. When the bass are biting fast and my line gets into this kind of a snarl I cut out the whole snarl at once and throw it away. I believe that we must do that in some cases of these old appendicitis with intestinal obstruction, but I have succeeded in undoing so many similar snarls that we will try it once more. Guided by the small granular lumps of fat we separate the adhesive omentum. That is easy. Guided by the direction of the blood vessels, we separate the adhesions of the mesentery. That requires sharp eyes, for the bowel as usual rolled itself up in mesentery when it first became frightened. Guided by the direction of muscular tissue we slowly work the iluem free. Here comes a sudden burst of pus which runs out upon the abdomen because of the Trendelenburg's position. The abscess cavity is irrigated with peroxide of hydrogen (Marchand). This is done because the peroxide is a searching sterilizer and it throws pus and debris out of nooks and crannies. It is easy to observe that the appendix is practically gone into solution in the abscess cavity, and here I find a piece of apple core encrusted with phosphates that has caused all the trouble. The

cæcum has disappeared. It was drawn up by adhesions, strangled, and forced to join the abscess. There is no ileo-cæcal valve but in its place a rigid, narrow, tortuous channel about five inches in length.

Gaze upon this wreck of vitals, produced progressively by successful attacks of appendicitis, and then consider the responsibility of the physician who in appendicitis cases advises the patient to wait. How easy an early operation in this case! How desperate the operation now! I ought to respect the intestine right here, but the patient has been absorbing pus for several months so I will make a fecal fistula to relieve the ileum, and resect the intestine a month later. The shock we will treat with nitrate of amyl to the nose at first and then hypodermic injections of nitro-glycerine and strychnine, together with the routine resources of hot bottles, hot rectal injections and elevations of the legs.

Our next patient is genial Dr. Robert Kennedy, Jr., of proteinol fame, whom most of you know. Judging from his appearance he has never lived upon anything more artificial than a thick tender porter house steak. His appendix must come out, however. Two years ago after exposure to cold sea winds, the Doctor was suddenly attacked with colic and abdominal cramps, but at the end of a week was practically well again. Eight months ago he was again attacked in the same way, but with added symptoms of rigors and vomiting, together with pain and tenderness in the right inguinal region. After subsidence of the acute symptoms there remained a persistent feeling that something was wrong with the appendix. He was constantly inclined to press with his hand over the region of the appendix and found discomfort in certain positions when sitting. That is a pretty good history of early infectious appendicitis.

After his history had been taken, our conversation was something like this:

Q. Well! What do you advise me to do about it?

Ans. That depends. If you are always where good medical attendance is within easy reach, it would be as well to pay no particular attention to the appendix at present.

Q. But I travel a great deal, and am liable to be caught with an acute exacerbation at any time and place, am I not?

Ans. Certainly.

Q. Is the next attack likely to be more severe or more mild than the last one?

Ans. No one can possibly predict!

Q. Is sloughing or perforation as likely to occur in the third attack as in the tenth one?

Ans. Surely!

Q. Can I recover completely and have no further trouble without an operation?

Ans. Yes!

Q. Am I likely to?

Ans. No!

Q. What are the dangers of an operation now?

Ans. I have never been anxious for my patient no matter what the complications were, excepting in desperate cases with pus and septicæmia to deal with at the time of operation; when these two features were absent the technique which buries the stump of the appendix and which ensures against ventral hernia later has given me perfect ease and comfort in a responsible position, and the patients have made uninteresting recoveries.

Q. The greatest danger from the surgeon, then, is when there is greatest danger from the disease?

Ans. *A la bonne heure!*

Q. Well, I like the opposite combination better! If by having my appendix cut now, I can escape the ever present dread of exacerbation and can save the time lost in attending to mild attacks. If you do not now dread the operation and if you will dread it when I am in danger from the disease, why is it not good business judgment to decide that the appendix should come out?

Ans. That is for you to say. I am at your service.

Q. When will you take it out?

Ans. On Saturday, 4.30 P. M., if you are willing to go before my class at the Post-Graduate Medical School. The matriculates have shown unusual interest in my appendicitis cases there.

Figure 2.

Final. All right! Glad to give them points! I'll be there!

And here he is. A man in fine health, suffering only a little discomfort, deciding to have his infectious appendix removed as a plain matter of forethought and discretion.

Figure 3.

The patient being placed in Trendelenburg's position my incision is made over the normal site of the appendix. The incision is about two and a half inches long, through skin and muscle and about one and one quarter inches long through transversalis fascia and peritoneum. Intestine presents. I see by the longitudinal band that it is colon.

Figure 4.

Transverse section of longitudinally split appendix. Moderate exudation.
1. Mucosa and adenoid coat bulging a little.
2. Submucous connective tissue thicker than the combined muscular and peritoneal coats.
3. Muscular and peritoneal coats.

Passing it through the fingers in a direction which will put the cæcal peritoneum upon the stretch, we soon come to a halt. The appendix must be very near. Here is its base presenting in the wound. I pull the appendix out through the opening. It is about

five inches long, hard and congested. While an assistant holds it with forceps, the mesentery of the appendix is ligated with cat gut and divided, the peritoneal and muscular coats of the appendix are clipped through at the cæcal junction. The mucous

Figure 5.

Transverse section of longitudinally split appendix. Exudative. A "pop corn" appendix.
1. Mucosa and adenoid tissue bulging prominently.
2. Submucous connective tissue much distended.
3. Combined muscular and peritoneal coats.

tube is ligated well down into cæcal mucous membrane with the finest of eye silk. The peritoneum of the cæcum about the base of the appendix is scarified with the point of a needle until pink serum exudes, and those of us who are accustomed to experimental

Figure 6.

Photo-micrograph of transverse section of infectious appendix of Dr. K. Mucosa, x 50. Intense round cell infiltration. No epithelium remaining.

abdominal work in the lower animals, realize that this is one of the most important points in the technique, and must never be neglected in cases like this one. The mucous tube is stripped away, leaving a trifling stump. Four Lembert sutures of cat gut

stump. If the silk ligatures and its tiny stump must escape for any reason they go into the lumen of the bowel. The relative position of sutures after this kind of suturing, is shown in Figure 2.

The method of ligating which is apt to leave an Esquimaux window at the site of appendix is illustrated in Figure 3, and I should have no confidence in such a scar. In closing the wound of the abdominal wall, peritoneum and transversalis fascia transversalis aponeurosis receive one tier of silk worm gut sutures. Internal oblique internal oblique aponeurosis each receive a separate tier of silk gut sutures, the to remain permanently, and skin and fat are honored with a cat gut tier. This nt now will not have a ventral hernia.

Let us examine the specimen removed. As I slit it along the free border you will ve that the inner tube hastily bulges out. It is what I call a "pop-corn" appendix, on comparing it with the normal portion of this other appendix the reason for the n is apparent.

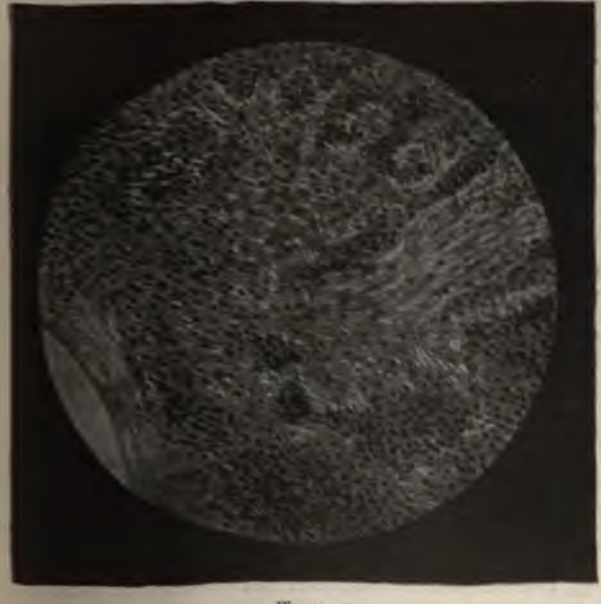


Figure 7.

Same case as Figure 6. Submucous and muscular coats infiltrated x. 250. Other secretions of this tion specimen show that the subserous tissue and even the walls of the blood vessels were invaded and the lymphatics were clogged with products of this infectious exudative inflammation.

The condition shown in Figure 5, is, I think, characteristic of infectious appendicitis. This elastic inner tube apparently swells within the outer tight tube until the resulting cuts off circulation and then little or big sloughs of mucosa and adenoid tissue occur. These either decompose and escape into the bowel, leaving an ulcer; or they escape bodily through the wall of the appendix leaving a perforation. That I think is a pretty good history of appendicitis no matter whether the infection began through the influence of exposure, or foreign bodies, or local tuberculosis, or amœbæ coli, nematodes, or typhoid fever, or dysentery. So far as I can learn, authors have not noted the

fact that patients sometimes depreciate rapidly in health without discoverable cause for a week or for several weeks before the first acute symptoms of appendicitis appear. The natural explanation is that they are absorbing products of the infectious inflammation at the appendix before exudation has swollen the mucous tube enough to make strangulation. It is sometimes asked how can I reconcile this theory and the condition of dropsy of the appendix, in which all structures are widely distended. My answer is: Slow, low grade inflammation giving time for dilatation of all structures, and not associated with tonic muscular spasm of the muscular wall of the appendix, such as we would expect in acute catarrhal inflammation. The theory of causation of appendicitis carried out to meet the common principal symptoms, is arranged thus:

Colic.—Simple vomiting. Right inguinal tenderness, choking of swollen inner tube in tight muscular tube which is made more rigid by tonic muscular spasm.

Colic.—Bilious vomiting. Right inguinal tenderness. Formation of tiny or large inner tube sloughs, and absorption of septic products from the decomposing sloughs.

Colic.—Bilious vomiting. Right inguinal lump. Oozing through or slow perforation of appendix wall by sloughs and other contents, met by lymph exudate from peritoneum.

Colic.—Bilious vomiting. Collapse. Rapid perforation of appendix wall by sloughs and other contents, allowing no time for formation for protecting lymph exudate.

The reason why the inner tube is so hard pressed in the tight tube of peritoneum and muscle is because of the great round cell infiltration and serous distension. I will ask Dr. J. C. Smith to make a section of this infectious appendix in the pathological laboratory and then give us a photo-micrograph.

It seems strange to me that the life insurance companies pay so little attention to a disease which daily claims its large quota of deaths. Patients who have exacerbating appendicitis can at present take out heavy policies in anticipation of a fatal termination of the malady. The insurance companies will not always discover that a patient has appendicitis if the diagnosis which patients bring to the surgeon form any guide. I am keeping a record of diagnoses that were made for patients of mine who had typical appendicitis, and the list up to the present time includes bilious colic, bilious peritonitis, gall stones, typhoid fever, typhilitis, perityphilitis, cæcitis, la grippe, abscess of the abdominal wall, pyosalpinx, ovarian abscess, and psoas abscess.

I wish the physicians who make the diagnosis of typhilitis, perityphilitis and idiopathic peritonitis, could know how farcical such a diagnosis sounds to those of us who have frequent occasion to look and who find the case to be appendicitis.

This subject of appendicitis, Gentlemen, is very near to my heart. Friends of mine attacked in the prime of manhood are now gone forever, because their physician waited to see if they would not get better without operation. When they were a little worse consultants were called in, and the consultants gave cheer and hope to the anxious families by describing similar cases of theirs which had made most excellent recovery. Finally, when my friends were dead, the physician said: There! Those were the cases for early operation.

As to the after treatment of these cases I treat cases of appendicitis as I do surgical abdominal cases in general, strictly recumbent position upon the back for twenty-four hours or more. Hot water to quench the thirst, and practically nothing else for twenty-four hours. Sometimes, however, when there is much nausea and giddiness from either, it is well to quiet it with a dessertspoonful of effervescing bromo-soda in a half-glassful of cold water—not iced. At the end of twenty-four hours begin a diet with proteinol, three tablespoonfuls every three hours; then for twenty-four hours proteinol two tablespoonfuls every hour and milk four ounces every three hours, giving them separately. Watch the effect of the milk carefully. Should its casein curdle in masses causing pain and flatulence with irritation, we must not continue to use it raw.

After about 60 hours, should nothing untoward have happened, the patient may be put upon regular diet. Care of course being taken that cold cabbage, pickles, beets, cheese and fried foods be omitted. Even at the risk of being monotonous let us keep

them on plain soups, roast and broiled beef, mutton and chicken; eggs, boiled or in plain omeletts; vegetables to be sparingly used unless known to be of no harm, tomatoes, potatoes stewed, baked, hash-brown or *au gratin*, not fried or boiled, lima beans, asparagus, etc. Cabbage and cucumbers had better be eschewed. Milk and dry toast well done, but not carbonized. But little food should be taken at a time, but often, allow all the milk they want, should it agree. As to proteinol the more they take and the oftener they take it, the stronger they will be. Always give proteinol by itself, one, two or three tablespoonfuls at a time according to the patient's age and inclination. All pastries should be denied, puddings well made may be allowed as well as a fair amount of fruit, raw or cooked, so as to keep the bowels in good working order. Omitting all unripe and distinctly acid fruits that may occasion pain or diarrhœa.

If the patient has been in the habit of smoking and requests it after about a week, I allow it in moderation. The same as regards stimulants. If the bowels have not moved on the second day after the operation I advise an enema of soap suds one pint, glycerine one ounce, and olive oil one ounce, the whole to be well mixed and injected gently, retained as long as possible, then ejected into a bedpan. By no means must a patient try to get up or to help himself in these matters. From this on the bowels should move each day or every other day; should they not naturally move they should be made to move by internal medication. The mildest and gentlest methods must of course be used. It goes without saying the room is warm, comfortable and cheerful. The dressings are not to be moved as long as the patient has not disarranged them, or pain, fever, and discomfort generally does not call for it. In about 14 days they can be removed and the wound dressed, if pus is present ferret it out with Peroxide of Hydrogen (Marchand's), dust with aristol, cover with absorbent sublimated gauze, then a layer of absorbent cotton or wood wool, then either use adhesive strips or spica bandage to keep the dressing in place, the size and condition of the wound will determine you in this. It is best that patients should not sit up in the bed before the 17th day, then for a little while, more on the 18th, sitting up beside bed on the 19th, on the 20th a little walking around the room is allowed. On the 21st day patients are generally ready to leave the hospital.

Since the original article was presented for publication the author has completed a series of researches which prove that appendicitis is an infectious, exudative inflammation following entrance of bacteria into the mucosa and adenoid tissue. The inflammation once begun probably does not stop until slow erosion or rapid necrosis cause entire disappearance of the mucosa and adenoid tissue. Years may be required for the completion of the infectious process, and in the interval the patient is subjected to the danger of poisoning of peritoneum, or thrombosis of mesenteric vessels, of local cellulitis, and of various other septic complications.

PEROXIDE OF HYDROGEN IN THE TREATMENT OF GONORRHŒA.—WITH REPORT OF CASE.

By JOHN J. SULLIVAN, M. D., New York.

(Published by the *Medical Summary* for July, 1893.)

My recent experience with Peroxide of Hydrogen in the treatment of gonorrhœa has led me to believe that we have in this agent a most prompt and efficacious remedy. There is no doubt that Peroxide of Hydrogen thoroughly destroys the gonococci and promptly renders the urethral canal aseptic and free from pathogenic germs.

Acting upon the theory that antiseptics have the effect of maintaining any cavity or canal in the state of asepsis (without being deleterious to healthy tissues), which is the condition most favorable for the cure of suppuration, I have found by the use of this drug that the danger of an extension of the inflammation into the posterior urethra is lessened, the course of disease is decidedly shortened, and gonorrhœal complications avoided.

The following plan of treating acute gonorrhœa has proved very gratifying in my experience. I instructed the patient to use as an injection three times a day:

℞ Hydrogen Peroxide, Marchand's, (medicinal,) 1 oz.
Aquæ dist., 6 oz. Mix.

I present a brief history of two cases treated according to this method:

CASE 1.—M. S., a married man, aged forty-five years, came to me in great perturbation of mind, stating that he had recently contracted gonorrhœa from a prostitute. He had all the characteristic symptoms of acute gonorrhœa. I gave him the above preparation requesting him to use it three times a day, and told him to call again in the course of three days, which he did, when I found him completely cured.

CASE 2.—The second case was that of a young man (unmarried), twenty-four years of age, who came with gonorrhœa of six weeks' duration. He had tried a host of remedies prescribed by druggists for the trouble, but in vain. It had gone from bad to worse, and made him feel in a very dispondent frame of mind. An examination revealed the tissues of the penis to be in a very swollen and painful condition, with a profuse purulent discharge from the meatus, the lips of which were much inflamed and angry looking. He complained of great pain of urination, and was restless at night. I gave him the Peroxide of Hydrogen as above, directing him how to use it, and requested him to call again in the course of five or six days. When he presented himself five days later I found that the inflammatory process was subdued, the pain of urination had disappeared, and the patient expressed himself as feeling in every way comfortable. Ten days after this he had reported himself as entirely cured.

It will be understood, of course, that in these cases I have directed the patients to observe the usual rule for diet and internal treatment.

TREATMENT OF VAGINITIS BY PEROXIDE OF HYDROGEN. (MEDICINAL).

BY HERMAN L. COLLYER, M. D., NEW YORK.

(Published by the *Annals of Gynæcology and Pædiatry*, of Philadelphia, Pa., Sept. 1893.)

There is no disease, aside from the grave maladies so annoying and distressing to the patient as vaginitis. The married and single alike may be attacked by it in one or another of its varieties, and its treatment by routine methods is slow and unreliable.

In all its forms, vaginitis starts as do other inflammations, with heat, pain, redness and dryness of the parts. The condition is soon followed by slight swelling of the labia, and by a discharge which becomes muco-purulent. Medical advice is usually sought after this stage has become established. It was an old-time custom, and is to-day observed by some, to order douches, with different mucilaginous substances, and to make local applications, many of which have wrought harm. The patient was dosed meanwhile with various drugs supposed to have a specific effect on the inflamed parts, regardless of the causes of this disease.

Dr. Egbert H. Grandin, of this city, called my attention some time ago to the valuable properties of Peroxide of Hydrogen, (medicinal) Marchand's, in cases of vaginitis. I then began its use in this disease, whether specific, simple or senile, and have been able to cure my cases in a more speedy and effective manner than by other methods.

It is my custom in the treatment of a case of vaginitis (purulent) first to wash the parts with warm creoline water (℥ ss to Oj), getting rid of all the secretions possible; then through a glass or rubber cylindrical speculum to thoroughly wash out the vagina. I use peroxide of hydrogen (medicinal) plentifully, either full strength or diluted with lukewarm water, and rub the surface with a pledget of cotton, withdrawing the speculum at the same time (but not allowing it to come out), so as to allow the peroxide to get deep

into the crypts, destroying the pyogenic membrane and the gonococci, if any have imbedded themselves into the epithelium; I treat the vagina throughout in this manner, and also the vulva, especially in the folds of the labia and the orifices of the Bartholin ducts. Having destroyed every vestige of the pus with the Peroxide of Hydrogen, I pour into the speculum about one ounce of sol. argenti nitratis (ʒ ss to ℥ i) and coat the denuded membrane throughout, inserting a strip of iodoform or aristol gauze to keep the parts separated, swabbing the external parts with the same solution (gr. xv to ℥ i).

I repeat this process every second or fourth day, as the case demands. The patient is instructed to remove the gauze on the following day, and to use in acute attacks, a cool, weak solution of the lotion plumbii et opii or muriate of ammonia sol. (ʒ ii to Oi) water, two or three times daily. When the symptoms become milder, the use of astringents is necessary, as sodii biborat, sulpho-carbolate of zinc or alum.

In specific vaginitis the endometrium and the urethra have often become affected. I treat those cavities in the same manner, of course observing the precautions necessary for each, in all cases securing free drainage.

ETIOLOGY OF THE VARIOUS DEFORMITIES OF HIP-JOINT DISEASE.

By A. M. PHELPS, M, D., New York.

Professor of Orthopedic Surgery in the University of New York and the New York Post-Graduate School and Hospital; Professor of Surgery in the University of Vermont; Surgeon to the City Hospital; President of the American Orthopedic Association.

Read before the American Orthopedic Association, September, 1892.

(Published by the *New England Medical Monthly*, January, 1894.)

We are all familiar with the deformities which occur in the first, second and third stages of hip-joint disease. The typical deformities are: In the first, abduction, slight flexion, and outward rotation, with apparent legthening (see Fig. 1); in the second, an exaggeration of the deformity which occurs in the first (see Fig. 2); while in the third stage the entire picture changes to that of flexion, abduction, inward rotation; and real shortening, with the toe resting upon the opposite instep (see Fig 3). In a considerable per cent. of cases erratic deformities are observed; such as extreme flexion with outward rotation and shortening of the affected limb, the deformities of the second stage occurring in the third. Abduction and shortening, without flexion, is sometimes seen.

This division into stages is made merely for clinical convenience, and relates only to semeiology.

Barwell says that we may conclude that the appearances indicate certain processes of disease, but with morbid anatomy the divison into stages has no direct connection. I have adopted this classification of the deformities in my observations and in writing.

A limb *with shortening, from destruction of bone*, I classify as belonging to the *third stage, without regarding the deformities present.* A limb with abduction, flexion, and inward rotation, I classify as disease in the third stage; even though there be no shortening, *I have observed in cases excised, that these deformities of the three stages as already described, follow very closely, and quite accurately interpret, certain pathological changes taking place in, or about, the joint.*

The question under consideration is, what causes these various deformities?

1. Why does the limb assume, nearly always, the position of abduction, flexion, and outward rotation without fixation, in the first and second stages, and abduction, flexion, and inward rotation in the third stage? (See Figs. 1, 2 and 3.)

2. Why, in a certain percentage of cases, do the deformities of the second stage occur in the third, *i. e.*, flexion, abduction, and outward rotation?

Barwell makes no attempt to explain these phenomena. I quote from this book:*

"While the muscles thus waste, the joint assumes a fixed position, natural to itself, abnormal only in its persistency toward the side of the flexion. This is the case at the elbow, wrist, and ankle, while at the shoulder abduction pertains; at the knee an inward twist of the tibia is usually combined with considerable flexion; at the hip very complicated positions, to be studied in a future chapter, are assumed. These postures assume in nearly

Fig. 1.

Fig. 2. Fig. 3.

every case of joint disease, almost with the certainty of an unchangeable law. There is, then, in all joint diseases, a tendency of the flexor muscles to contract, while the extensors, if not in absolute relaxation, do not, at all events, retract such action."

"It is true that the flexors are probably, in the limbs, stronger then the extensors, but in fact a mere examination will show that on the flexor side muscles are rigid and on the opposite side flaccid. Our knowledge is as yet insufficient to account for the phenomenon."

We will consider these statements later. The experiments of the Germans and of Edwin Owen, of London, England, demonstrated that the joint, when forcibly injected

*Barwell, p. 106. Wood's Library, 1881.

from within the pelvis, produced eversion, flexion, and abduction of the limb and immobilization of the joint.

Sayre concludes from these experiments, that effusions are always present in joints diseased, that the intra-capsular hydraulic pressure is the cause of the deformity in the first and second stages of hip disease.

He says (his book p. 248): "The peculiar position of the limb gives to the second stage of the disease the name 'apparent lengthening,' but I prefer to designate it as the stage of effusion."

And he accounts for the deformity of the third stage, viz., flexion, adduction, and inward rotation, by the rupture of the capsule and the escape of the fluid, thus relieving

Fig. 4.

Fig. 5.

intra-articular pressure. This he claims, allows the legs to swing to the deformity of the third stage. He says (p. 259).

"And rupture of the capsule takes place and the imprisoned fluid escapes into the surrounding tissues. When this has occurred the disease is in the third stage.

"The limb is now adducted, inverted, and flexed.

"The change in position is due to the fact that the fluid in the joint cavity has been evacuated.

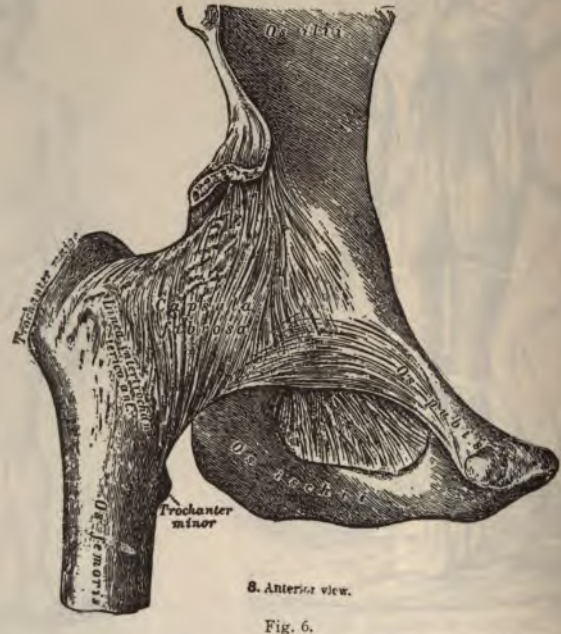
"The distension of the capsules, which was the mechanical cause of the flexion and adduction of the limb, having been relieved, nothing now obstructs the free action of the adductors, and the limb is therefore adducted and inverted."

So far as I know, this hypothesis of the Germans, approved and indorsed by Dr. Sayre, is the only explanation we now have of the etiology of the various deformities of the hip-joint disease. Barwell offers none; but makes among others, a broad statement that, "It is true that flexors are probably, in all limbs, stronger than extensors."

A moment of thought will convince us that this last statement is certainly an error.

In the knee-joint the quadriceps is much stronger than the flexors. This we have demonstrated in the course of our experimental work, and it will be published shortly. The same is also true of the hip-joint. The fluid hypothesis is certainly erroneous, for the following reasons:

1. A very large per cent. of cases of morbus coxarius are unattended by fluid effusions. *Still, the same picture of deformity is seen as in those cases attended by large effusions.*



8. Anterior view.

Fig. 6.

2. I have observed in our clinics and have operated upon cases of *extra-capsular disease, in which the joint was not diseased but the same picture of deformity presented itself.*

Barwell says (p. 292) "While inflammation, or even suppuration about the epiphysis of the femur arises, certain pains, forms of lameness, etc., are produced, while as yet there is no effusion or suppuration within the joint cavity; no morbid change of the parts which form its walls. We have, namely, so-called symptoms of morbus coxarius, while as yet in the hip (joint) there is no disease."

3. Cases of suppurating joints with large effusions, often take the erratic deformities of the third stage—*i. e.*, abduction, flexion, and outward rotation—even after the joint contents have discharged.

4. There can be no reason why, after the evacuation of the joint, the limb should not return to the deformity of the second stage instead of the third; because the three

Fig 7.

Fig. 8.

great glutei and outward rotators are stronger than the abductor group, unless the limb is flexed beyond twenty degrees. These are the chief, and I believe, valid reasons why the explanation of these deformities by the fluid hypothesis is incorrect.

I have become fully convinced that as yet a correct explanation has not been offered for these deformities.

After concluding several dissections of the hip-joint, I desire to place before you for your consideration and criticism the theories and hypothesis upon which we worked, and the conclusions at which we arrived.

It became necessary before any experimental work was performed, to carefully compile clinical data in a large number of cases. Assisted by Dr. Plymptom and Greenway, these observations were made at our clinics at the University Medical College, and also at our Out-Door Department and the Orthopedic Ward of the New York Post-Graduate School and Hospital, two places which afforded us ample opportunities for observation. The conclusions reached were:

Fig. 9.

1. That abduction nearly always preceded flexion, or was attended by it, in the first stage.

2. Abduction and outward rotation, are always present in the second stage. Flexion was nearly always present, but was absent in a few cases.

3. When the limb flexed beyond forty degrees, and frequently at a much lesser degree (twenty degrees), it quite rapidly passed to the deformity of abduction, inward rotation, and flexion, *whether the capsule contained fluid or not.* (The degrees alluded to are from a horizontal plane.)

4. A few cases exaggerated the deformity to the second stage for the third. In other cases there was outward rotation, abduction, shortening, with but slight flexion in the third stage. (See Fig. 4.)

In another case observed by Dr. Plymptom, abduction and inward rotation, without flexion, occurred with three-fourths of an inch shortening. (See Fig. 5.)

5. That there was always spasm and contraction of muscles about the joint, and *in nearly every case all the various groups were in a state of spasmodic contraction.* That shortening annulled or modified the action of the abductor group.

These observations, together with dissections which Dr. Greenway and I made, presented numerous problems which will be considered later. At the University dissecting-room, we made a series of dissections, from which I think a fair explanation can be given of every deformity which may occur in any case of hip disease.

The hip-joint is surrounded on its outer aspect by a mass of muscles running diagonally from the pelvis to the great trochanter from all directions. When the limb is in a straight position the combined action of these muscles produces abduction of the limb. The capsule is wound around the neck of the bone. The tension of this capsule, together with that of the Y-ligament, holds the head of the bone firmly in the socket and produces great pressure upon the joint when the limb is in the straight position. (See Fig. 6. Straight position.)

Fig. 10.

The great abductor group of muscles pass diagonally downward from the pelvis and are inserted into the shaft at the femur posteriorly along the linea aspera. (See Fig. 7.)

The flexor group arises from within the pelvis, passes downward over the pubes, taking a reinforcement which arises from the anterior surface of the capsule of the joint, and is inserted into the lesser trochanter. This group acts over the pubes as a cord over a pully, *and its power increases as the leg flexes.* This flexor group is antagonized by the inferior portion of the glutæus maximus.

The external rotators are antagonized by the tensor vaginæ femoris and a portion of the glutæus minimus and medius. Thus we have the several groups in their respective order when the limb is in the straight position, viz.:

Glutei group, abductors, antagonizing adductor group.

Flexor group, antagonizing extensor group.

External rotator group, antagonizing internal rotator group.

To determine the relative strength of each group the muscles were weighed separately, and the triangle in which they operated measured, as also was the length of lever upon which they operated. The glutæus maximus muscle, which weighed two and one-half pounds, acting in a triangle formed by a line drawn from its insertion near the great trochanter to the centre of the head of the bone, three inches; from the head of the bone to the origin of the muscles, six inches; from its origin to its insertion, six inches, was assumed to be capable of lifting fifty pounds one inch. This was taken as the unit of strength. Other triangular muscles of different weights, operating in dissimilar triangles, could be accurately estimated as to their comparative strength. The rule which I followed was that laid down by Haughton (see "Haughton's Principles of Animal Mechanics," p. 183), from which I quote:

"The work done by the same (a triangular) muscle will be proportional to double the perpendicular, let fall upon the side of a triangle from the foot of the bisector of the vertical angle." The quality of the muscular fibres of each group very closely cor-

respond. In each group are found fine or coarse muscular fibre in about the same proportion. The rule applied to ascertain the relative strength of the great adductor and abductor group gives to the adductor group a decided advantage, because they stand paralel with the plane of the triangle, whereas the glutei muscles do not, but were so measured and estimated. In spite of this advantage given in the estimates the abductor group acting on the shorter lever was found to be much stronger than the adductors, the proportion *being one hundred and thirty-one pounds to the abductors, to one hundred and sixteen pounds to the adductors in the subject examined.* Then, when all the muscles are affected by spasm equally and the limbs parallel, the abductors would produce abduction because of their superior strength.

Fig. 11.

From our clinical observations *I at once concluded* that the reason why the limb went over to the deformity of the third stage of the hip-joint disease *was because the action of these muscles were all changed by the flexion of the limb, or from pathological destruction of the joint changing or annulling the action of the muscles by destroying the leverage, or localized irritation of nerve-plates in the area of disease, producing spasms of groups of muscles receiving nerve-supply from the same common tract.*

The question of nerve destruction within the joints quite surely plays an important part in determining deformities occurring in circumscribed foci of disease. But after the entire joint becomes involved, the element must be left out of the question only so far as general spasm is produced in all muscles about the joint. I quote from a letter of Dr. Towle, Professor of Anatomy in the University of Virginia, which seems to demonstrate that the nerve-supply comes from different trunks.

"As to nervous supply of hip, what I have seen is as follows: The obturator immediately on emerging through the obturator foramen gives off a branch which pierces the capsule; the sacral plexus or the upper part of great sciatic, gives off two small branches which enter the back of the capsule, the nerve to obturator internus, from sacral plexus, leaving through great

sacro-sciatic foramen, gives a branch to back of capsule. What particular structure of joint is supplied by each I cannot say, as I have only traced it to capsular ligament.

When the limb becomes flexed, the abductors begin immediately to lose their power as abductors, and in proportion to flexion become inward rotators.

Figs. 8 and 9, taken from the dissections, represent the glutæus medius, with the limb in a straight position, and then flexed to thirty-five degrees. *In Figure 8 the muscle acts as an abductor, while in Figure 9 its action is changed to that of an internal rotator when the limb is flexed to thirty-five degrees.*

Fig. 12.

Figs. 10 and 11 are from photographs of our dissections of the glutæus minimus. In Fig. 10, the limb straight, the muscle acts as an abductor; whereas the limb being flexed only fifteen degrees, it becomes a powerful internal rotator and increases in power as the limb flexes, as does the tensor vaginæ femoris (see Fig. 11): the outward rotators become abductors when the limb is flexed to an angle of about forty degrees, with the exception of the quadratus femoris and obturator externus. The change of action in the other muscles is quite as marked as in these which have been illustrated and presented as examples. (See Figs. 10 and 11.) This brings us to a consideration of the problem before us.

Question 1. Why in the first stage is the limb slightly abducted, outwardly rotated, and flexed with apparent lengthening?

Answer. Because of a voluntary effort on the part of the patient to relieve tensions of the capsule and Y-ligament. (See Fig. 6.)

Question 2. Why does this deformity increase, constituting the second stage of the disease?

Answer. Spasm of the muscles about the hip-joint is present. The great glutei, outward rotators, tensor vaginæ femoris, and flexors acting together have the advantage

of leverage and strength (being irritated and affected by spasm, and aided by a voluntary effort, or non-resisting effort of the patient, the same as in the first stage) the limb still exaggerates the deformity of the first stage.

Question 3. As a rule, with an occasional exception, why do limbs assume the deformity of the third stage only after flexion to twenty-five degrees has taken place?

Answer. *Because after the limb passed to twenty-five degrees of flexion, the abductors* to a very great extent *become internal rotators* (see Figs. 8, 9, 10, 11); the *external rotators almost totally lose their power as external rotators* (see Fig. 11), *and become abductors*, with the exception of the quadratus femoris and obturator externus, and the tensor vaginæ femoris becomes a powerful inward rotator. Resistance or antagonism to the powerful abductors and flexors of the thigh being modified or annulled by flexion, the limb must pass to the deformity of the third stage, namely, abduction, flexion, and inward rotation.

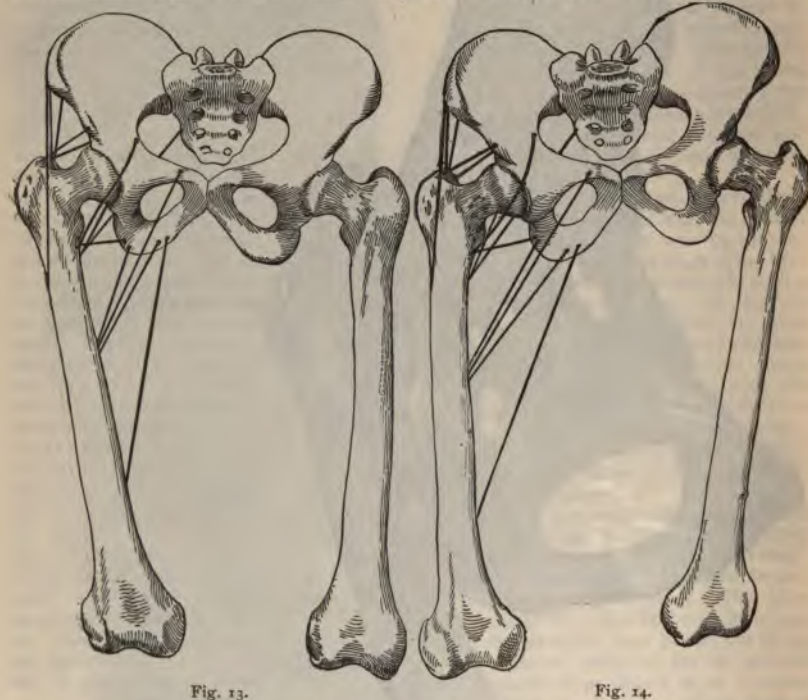


Fig. 13. Fig. 14.

Question 4. Why do some cases in the third stage of the disease continue the deformity of the second?

Answer. These may be, and usually are, cases characterized by great abduction and outward rotation from the commencement of the disease, or soon after. Many of these erratic deformities occur in bed cases from positions of case assumed while lying. In others the head of the bone is thrust forward against the anterior and upper border of the acetabulum, cutting it away producing a partial dislocation forward. This extreme abduction puts the abductors on the stretch and partially paralyzes them by

tension. The abductors and outward rotators become permanently contractured, adhesions form, and the limb is held in this extreme position of deformity of the second stage in the third.

I have excised two cases of this deformity, and in both cases the head of the bone had peforated the acetabulum anteriorly and superiorly, and the bone was held firmly against the pelvis by bands of adhesions.

Fig. 15.

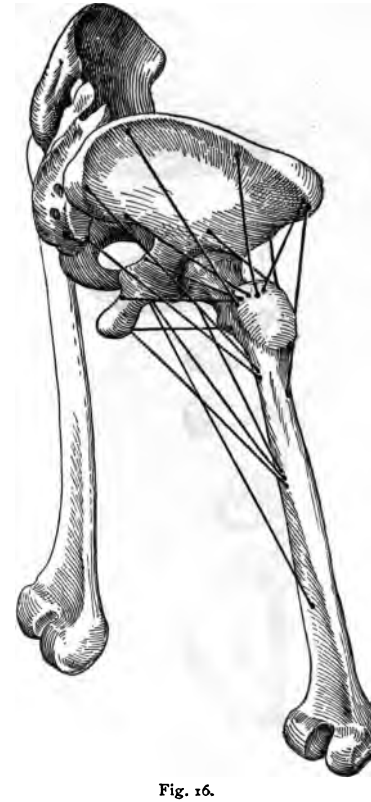


Fig. 16.

Fig. 12 is taken from a photograph of a case where the head of the bone had cut away the acetabulum anteriorly and superiorly, and was about to escape through the openings forming in the acetabulum into the pelvic cavity.

Dislocations may take place anteriorly and posteriorly; posteriorly, often from large effusions or other pathological cause; but anteriorly from destruction of the anterior border of the acetabulum, due to the action of the external rotators and glutei muscles and

destruction of bone from disease. *The shortening of the neck of the femur destroys the action of the flexors and the abductors by changing the leverage.*

Question 5. Why did one of the cases have abduction, outward rotation, and shortening without flexion? (See Fig. 4.)

Answer. Because of the destruction of the head and neck of the femur, or the passing of the head through the acetabulum *anteriorly*. This destroyed the leverage of the glutei and flexors, which gave the abductor full power to abduct while the external rotators still acted. The same cause explains the deformity in Fig. 5, only the head took a *backward* course owing to *destruction of bone in that part of the acetabulum.*

Nerve distribution within the joint undoubtedly plays an important part in producing special actions of groups of muscles, depending on the location of the lesion. As for

Fig. 17.—The Cheap Dispensary Splint.

Fig. 18.—The Double Dispensary Splint.

example, in the knee-joint flexion is never seen in disease of the patella alone. This is due to the fact that this portion of the hip-joint is supplied from the anterior crural and obdurator nerves, which trunks supply the extensors of the limb, and not the flexors. Whereas flexion occurs in disease of the condyles, the nerve supply of which is derived from the great sciatic, which nerve-trunk supplies the chief flexors and not the extensors of the limb.

To furthur illustrate the action of the muscles about the hip-joint, the limb being

straight and then flexed, I present this manikin, with rubber straps so placed as to represent the action of the various groups of muscles. Fig. 13 should represent the limb parallel, but the artist failed to place them so. Abduct the limb, as seen in Fig. 14, and the pelvis tilts and the right limb appears too long. This relieves the pressure within the joint by unwinding the capsule (see Fig. 6), and puts the abductors on the stretch, enfeebling their action until flexion commences or the head and neck are destroyed by disease. The abductor group being stronger, holds the limb in position, (See Fig. 15,

Fig. 19.—The Patent Splint Adjustive High Shoe, and Crutch.

Fig. 20.—Inside Bar and Lateral Traction-lever.

side view, limbs parallel.) Then as flexion commences the action of every muscle is changed or modified (see Fig, 16), and the limb must assume the position of the third stage of hip-joint disease, viz., flexion, abduction, inward rotation.

Conclusions.—Normal or typical deformities are produced by change of leverage and action of muscles due to—1. A voluntary effort. 2. Involuntary spasm or contraction of muscles. 3. Nervous irritation of groups of muscles due to location of lesion in or about the joint.

The erratic deformities are produced by change of leverage, due—1. To patho-

logical causes, *e. g.*, destruction of bone, head, neck, or acetabulum. 2. Nervous irritation of groups of muscles, due to location of disease in and about the joint.

The pathological causes of erratic deformities are—1. Shortening of the head and neck of the femur. 2. Perforation of the acetabulum. 3. Shortening of the limb from either of the last named causes. 4. Burrowing of pus through groups of muscles, either irritating them to contraction or destroying them. 5. Dislocations from destruction of bone. 6. Dislocations from large effusions. 7. Cicatricial contraction binding down and restricting the limit of motion of the femur.

The explanation of the cause of the deformities existing in hip-joint disease is appliable to every joint in the body, and very soon I will publish the result of experiments on all the other joints.

I have for the sake of brevity omitted the mathematical work, and also the results of the study of the action of flexor and extensor groups, for to my mind they play altogether a secondary part in the drama.

The reader at once asks the question, "Why all this work? what good can come of it?" I will briefly answer: In the treatment of hip-joint disease fixation to prevent motion, and extension, to overcome intra-articular pressure, is the law of treatment.

We have observed that these great and powerful groups of muscles act upon the thigh with so much force as to produce great deformities. That the patient voluntarily assume certain positions to relieve the tension of the capsular ligament *whether there is effusion or not. That these groups of muscles do not act on an axis with the shaft, but nearly on a line parallel with the axis of the neck of the femur.* From these facts we must decide that to relieve intra-articular pressure by overcoming the contraction of the muscles *traction should be made in the line of the axis of the neck and not of the shaft.*

Patients with deformity should be put to bed with two lines of extension one in a line with the axis of the shaft and deformity, and the other at right angles to the shaft. If abscesses are present they are always incised and washed out with bichloride of mercury, solution 1 to 1000, then thoroughly disinfected with Marchand's Peroxide of Hydrogen ($H_2 O_2$ medicinal), then the joint and abscess cavity filled with iodoform and glycerine, one-half to four ounces, and finally packed with gauze, dead bone is removed to any extent up to complete excision if necessary. Then when the deformity is overcome I place them on a lateral traction fixation splint, which I devised with a high shoe on the well limb, and a pair of crutches, and allow them to take plenty of out-door exercise. A glance at the cuts will convey the idea.

The thoracic portion is necessary to fix the joint. *It is argued that the patient cannot sit down. This is incorrect.* The patient sits on the *side of a high chair and the leg and splint fall to the side the same as any other hip splint.* Sayre says the patient's leg must stick out and be in the way.

So must it when his hip or knee-splint is adjusted. He also, says anchylosis must result from this fixation, that motion is necessary to prevent the accident. *I have not observed bony anchylosis nor angular deformity in over two hundred cases, many of whom have been fixed from one to four years without motion.*

Sayre's knee-splint fixes the knee by extending from below to above the knee without a joint. If fixation is good for a diseased knee, why is it not good for a diseased hip? Is there any difference in the treatment of the same disease, whether in the hip or in the knee? Should we have a plan of fixation for the knee and motion for the hip?

Shaffer's statistics *show anchylosis in about sixty per cent. of his cases reported. He uses the long traction splint, essentially the same splint used by Sayre, Taylor, and others —one that permits of free motion at the hip-joint. The patient is allowed to walk upon the splint, and nearly every case recovers with angular deformity. This is wholly unnecessary. No case need recover with bony anchylosis or angular deformity.*

I do not pretend to have solved all the problems of the causes of the deformities occurring in morbus coxarius; but I offer this paper as a preliminary one to further study of this most complicated joint in a condition of disease.

These splints are made by Ford of New York.

THE ETIOLOGY, DIAGNOSIS AND TREATMENT OF ULCERATION OF THE RECTUM.

BY JOSEPH M. MATHEWS, M. D., LOUISVILLE, KY.

Read before the Mississippi Valley Medical Association, at Indianapolis, Oct. 5, 1893.

(Published by the *New England Medical Monthly*, January, 1894.)

The time allowed to reading papers before the society is too limited to permit of an exhaustive review of my subject.

I will therefore only deal with it in a general way. For a matter of convenience I will classify these ulcers under four heads, viz.: benign, malignant, tubercular and specific. To this division there might be a valid objection based upon correct pathological grounds. As for instance: In this classification I make the term malignant, synonymous with cancer, and yet the tubercular ulcer may in truth be malignant, without assuming the characteristics of cancer. Again, some writers would have us believe that the tuberculous patient was closely akin at last to the syphilitic one, or vice-versa, and thirdly, there is a well grounded belief with pathologists that innocent or simple ulceration may at any time take on proportions of malignancy. These subjects would take more time than is given me, to discuss them to-day. Therefore to begin in the order named I would say that benign ulceration is not so frequently found in the rectum as is supposed. Indeed whenever I meet with a well defined ulceration existing in the rectum I immediately begin to suspect some special diathesis. One would think that from the office of the rectum it was particularly liable to become ulcerated. But if we study the part anatomically it will be seen that nature has provided it well for the purpose it serves. For instance its mucous membrane is much thicker than any other portion of the intestinal tract, and therefore more able to resist irritation. The pouch of the rectum is very capacious and sufficiently able to accommodate the supply. It is only when the physiology of defecation is interfered with that any danger is to be feared. The lumen of this portion of the gut is not narrowed by any ordinary causes. For these and other reasons I have long since been forced to believe that such ascribed causes as pregnancy, dysentery, etc., were not great factors in producing ulceration of the rectum.

Malignant Ulceration.—The rectum is a favored seat for cancer. Many times the disease is overlooked entirely or diagnosticated as some other affections. It has occurred to me several times to have had patients referred to me for some trivial rectal trouble and found cancer instead. One would think that of all diseases affecting this portion of the body that cancer could be most easily told. If we take the books as guides I can very readily see that a faulty diagnosis is quickly arrived at. If we are to believe that such symptoms as pain, hemorrhage, and the discharges, are characteristic, and that the odor is pathognomonic, then cancer is quickly told. But when it is a fact easily demonstrated that cancer may exist without even one of these symptoms being recognized, it then becomes a matter of much confusion. You might ask, have we not in the microscope an infallible resource for diagnosis? I would answer, I think not. Upon five different occasions has the microscope told me that I was dealing with a carcinoma when the after treatment revealed the fact that it was not so. I am inclined to believe that about as much as we know on this subject was known many years ago. "The cancer cell is widely different from the gland cells, and they are grouped differently from the natural cells." What are we to do, then, when dealing with a suspected case of cancer? Take the general clinical history, with symptoms, to aid our diagnosis.

Tuberculous.—This is a more common form of ulceration of the rectum than is generally supposed, reversing, in my opinion, the verdict in the case of benign ulceration. Koch's discovery of the *tubercle bacillus* has thrown much light on this subject, and aided us materially in the treatment or all forms of tubercular affections. The treatment of tuberculous joints, bone, tissues, etc., has nearly been revolutionized by this dis-

covery, and although it has knocked out of joint that old and most sacred teaching of heredity, it has done much for the afflicted. It had become almost a part of theology to believe that the sins of the father were visited upon the children for generations, but it is unorthodox (medical) for one now to believe that consumption is hereditary. I have seen many cases of tubercular ulceration of the rectum that went on to a fatal termination, without the slightest sign of tubercle in the lung. The diathesis bears such unmistakable symptoms that it is hard to mistake.

Specific Ulceration.—That syphilis is the cause of ulceration of the rectum no one will deny. That it is responsible for fully one-half of the cases, I am fully convinced. Although I have been criticised for saying this, I am more convinced every day that it is true. I have taken occasion before to say that whenever I see a well-pronounced case of ulceration of the rectum, and can clearly eliminate cancer, then in the majority of cases it will prove to be syphilitic.

It is estimated by a late writer that fully six million people in the United States have syphilis. Admitting that it often shows itself in the form ulceration in the rectum, it is no wonder that the estimate in numbers could occur. One does not have to be in rectal practice long until he is surprised at the number of such cases met with.

Having just incidentally referred to the four causes of ulceration of the rectum without going fully into the ætiology, you will permit me to refer in few words to the

DIAGNOSIS.

I know of no class of disease that requires more absolutely a correct diagnosis than do these. The treatment must in every individual case depend upon a correct opinion of it. We cannot treat a benign ulcer as we would a malignant one; nor a tubercular ulcer as a specific one; nor the last named as the first named.

Benign ulceration must begin as a lesion to the mucous membrane. The term trauma here would be most appropriate. Therefore, a history of a wound, or anything that might lacerate, break, or in any way damage the membrane, must be sought after. Of course the class of ulcers called irritable cannot be considered in this article. They have one symptom that will always diagnose them, viz., pain coming on directly after stool, and a search reveals the ulcer on, or embracing the sphincter. The appearance of a benign ulcer is very different from any other character of ulceration. Its edges are hard and resist invasion. The base and margins are likewise, and a quick disposition to heal exists with the slightest treatment. In other words, an innocent ulceration in the rectum is very much like the same located anywhere else. A malignant ulceration possesses properties directly opposite to the benign type of ulcers. Their disposition is to infiltrate, and break down. No treatment will prevent this. The edges and base quickly yield and the ulceration rapidly extends. I would much rather trust to these conditions to tell me the nature of the ulceration than the so-called pathognomonic signs of bleeding, pain and odor. The tubercular ulcer is closely allied to the malignant one in general appearance and some characteristics. It bleeds freely when touched, is disposed to break down and sometimes its progress is rapid. One characteristic, however, is that the process is painless. I have seen cases of this kind where the buttock was nearly destroyed, involving the rectum, and the patient complained of but little pain. There are two things, however, that will quickly aid in the diagnosis:

1. The diathesis, which is easily discerned.
2. The discovery of the special bacillus.

In malignancy the peculiar color or cachexia is secondary to the existence of the primary cause, the tumor. In tubercle, ulceration is secondary to the diathesis. The physical signs of cancers are nodules, those of tubercle, a ragged and irregular edge.

Cancer begins subcutaneously as a growth and ulcerates afterward.

Tubercle begins either as an ulceration or cold abscess.

The discharge from a malignant ulcer is pus, or pus mixed with blood; from a tuberculous ulcer, broken-down tissue serum, and an occasional pus-producing microbe.

Outside of all physical signs, the microscope would make the diagnosis in tubercular ulceration.

In the specific, or syphilitic ulcer, we generally have the history of the disease from the patient or *prima facie* evidence of its existence in symptoms. Besides this the feeling given to the finger is unlike any other character of ulceration—not nodular, as cancer—nor ragged, as tubercular. Nor does it possess that distinct appearance of the benign ulcer. It is not circumscribed by a wall of lymph either, for it comes from the ulcerating process of a gummatous deposit, and may extend for inches up the rectum. It is more insidious than cancer, and yet attended by all its horrors; in other words, just as incurable after it gets a good foothold in the rectum. It is slower in its progress than cancer, but cruel in the length of time it takes to destroy. The most terrible cases of it that I have ever seen have been in pure, virtuous women, the victims of the husband's vices.

Treatment.—I can barely allude to treatment of these different ulcerations and will make it suffice to call attention to the methods briefly:

Benign.—Local application.

Malignant.—Extirpation.

Tuberculous.—The curette.

Syphilitic.—Anti-syphilitic treatment. Colotomy, local medication, extirpation.

In the treatment of the first-named, benign ulcerations, it is absolutely necessary to have rest for the part. Mr. Hilton gives us a most excellent hint in this regard in his little book called *Rest and Pain.* Every surgeon has recognized how utterly fruitless have been his efforts to heal ulcers on the lower extremities while his patient persisted in walking about. So with the rectum, if it is to be used every day in evacuating the bowels, that disturbance will prevent the healing process. The first thing to be done is to thoroughly purge the intestinal tract; second, confine the patient to bed; third, local applications. Having the bowels purged, a large enema of hot water should be given, the patient put upon a liquid diet and if the ulcer is in the veins and is at all indolent, it should be touched with nitrate of silver or other stimulating applications; after healthy action is established an injection made into the rectum daily of:

℞ Sweet almond oil ℥ j.
Iodoform, gr. v.
Sweet nit. bismuth, ʒ ss.

will do much to cure the ulceration. Every fourth day the patient should be given an aperient. I need not call your attention to the fact that these patients are often treated per mouth for dysentery, which they have not, when a few days of local treatment will effect a cure.

Malignant Ulceration.—In the introduction of treatment I have said that ulcers of a malignant type should be extirpated. I know how common the idea and practise is to resort to colotomy for this condition. By comparison it is in substance this. By a colotomy you do a disgusting operation, and leave the offending mass just where it was; by extirpation you remove or attempt to remove that which is sure to kill if left. By Kraske's operation we are enabled to accomplish that in many cases.

Tuberculous Ulceration.—According to modern thought and investigation we must believe that from any given point of a tuberculous deposit, infection of neighboring or distant parts may take place. The conclusion then is irresistible that said point must be destroyed.

It is clearly demonstrated that if that point be in the rectum the curette is the best instrument or way to get rid of it. In so doing, however, the same hint that is to be observed in removing cancer must be observed here, it must be done thoroughly.

Syphilitic Ulceration.—The ratio of difference between cancer and syphilis of the rectum is in the time that each takes to kill, and the advantage that accrues to the patient will be given to cancer, for it ends the misery much quicker than its competitor, syphilis, which inflicts a long drawn out misery with a certain death. I have often said, and still insist, that where a syphilitic ulceration with coincident stricture of the rectum exists, the condition is just as incurable as cancer.

If then the ulceration is seen in its incipiency, which it really is, we must rely upon

anti-syphilitic and local treatment; if a stricture exists and is within reach it should be resected; if located beyond the reach of the finger and is a close constriction, an inguinal colotomy is advisable. In all these operations around the rectum I am in the habit of using as a cleansing agent, Marchand's Peroxide of Hydrogen. Indeed I consider the preparation indispensable in my work. Whatever strict asepsis will do in wounds elsewhere it is best in wounds around the rectum to use chemical agents, and the best of these is Peroxide of Hydrogen. Not having time to elaborate the points hinted at in this paper, I will close by saying that if any additional light has been thrown upon this very important subject by this paper, I am repaid.

DIPHTHERIA—FALSE MEMBRANE EXPELLED—RECOVERY.

By PERCIVAL LANTZ, M. D., Alaska, W. Va.

(Published by the *Medical Brief*, St. Louis, Mo., January, 1894.)

During my absence at the World's Fair and St. Louis (where I had the pleasure of meeting the genial and scholarly editor of the *Brief*,) Roy W., aged five years, was taken ill of diphtheria. Dr. Hodgson, of Cumberland, who had charge of my practice, was called and treated the case *secundum artem*, and the patient seemed to be getting along very nicely until on Monday, September 18, when he was discharged by Dr. H.

I arrived home on Monday and on the following day was called to see the patient. I found him very much prostrated, breathing sonorously and with great difficulty; croupous cough, unable to speak above a husky whisper, diminished respiratory murmur, and moist bronchial rales. The last two symptoms being ascertained upon auscultation and implicating an invasion, by the false membrane, not only of the larynx and trachea, but also of the bronchi and bronchial tubes. This condition of affairs had existed, I was informed, since the evening before, but the family, not knowing that I had returned, did not send for me. When I arrived at the house, I realized the fact that the case was a critical one, as the larynx, trachea, bronchi and bronchial tubes had been invaded by the false membrane.

As the little fellow had so much difficulty in breathing, his parents were very anxious that I should "give him something to make him breathe better," so I concluded to give him carbonate of ammonia in order to thin and render less tenacious the profuse bronchial secretion, and thus allow it to be more readily expectorated. I did not have any of the carbonate with me, however. so I placed him on the following:

℞ Ammonii chloridi, gr. xl.
Spts. ammon. aromat., ʒ ij.
Aquæ, q. s, ad ℥ ij.

I also ordered inhalations of the steam from hot vinegar, and had the iron and potash mixture, left by Dr. H., continued.

On the following (Wednesday) morning, I called again and found the patient in the same condition, but much weaker. Parents and friends had given up all hopes of his recovery, but I ordered the medicine and inhalations continued, telling them that it couldn't do him any harm and there was a possibility of the false membrane being expelled if it should become sufficiently loosened by the steam and medicine. I did, by the way, suggest intubation or tracheotomy as a last resort, but the parents were inclined to think, from what Dr. H. had told them, that it could only prolong life for three or four days, and so did not consider it worth while to try it, as they felt that the child could not live long under any circumstances.

I was called again on the afternoon of the same day, but before I reached the house (it being five miles from town), the patient had, during a violent attack of coughing,

expelled the false membrane, and though completely exhausted, was breathing very naturally. The membrane, which I still have preserved, is a perfect cast of the larynx, trachea, bronchi, and on one side, of three bronchial tubes. My professional brethren who have seen it say they have never seen or heard of so extensive a cast of membrane being expelled. The patient was very weak for awhile, and was given two teaspoonfuls of whiskey every half hour for thirty-six hours, then the same amount of whiskey every two hours, and in addition 1.130 grain of strychnia sulph., every three hours, continuing the ammonia mixture and a spray in nose and throat of Marchand's Peroxide of Hydrogen. The patient made a good recovery. For a few weeks his voice was considerably impaired, but it is now about the natural tone.

I might state that my treatment of diphtheria varies somewhat according to circumstances. As a rule, however, I give a mixture of tincture ferri chloridi, potassii chloratis, glycerini and aquæ every hour. Also a spray of listerine or Peroxide of Hydrogen, and stimulate the patient. I always give a sufficient quantity of hydrarg. chlor. mite in the beginning of the attack, or when I first see the patient, to move the bowels and often continue it in small doses, say one-tenth grain, throughout the course of the disease. I consider it a good plan to keep turpentine boiling on the stove or over a lamp in the sick-room, and I always have this part of the treatment carried out. The turpentine, either the spirits or oil, should be renewed as often as necessary to render the odor distinctly noticeable by the attendants. Have also found the vapor from slackened lime or hot vinegar very useful, especially in cases of diphtheritic laryngitis.

FRACTURE OF THE SEPTUM NARIUM—IRRITATIVE CONGESTION OF THE TURBINATES.

By CLARENCE C. RICE, M. D.

Professor of Diseases of the Nose and Throat at the N. Y. Post-Graduate Medical School and Hospital.

(Reprinted from *The International Journal of Surgery*, March, 1894.)

GENTLEMEN:

As this is the first time that this patient has presented himself at the clinic, I will give you a brief history of his symptoms. He is a fireman, age 34, and seven years ago sustained a fracture of the nasal septum. He coughs a great deal on getting out of bed in the morning, and complains of a considerable amount of mucus dropping down from the nose into his throat.

This symptom of mucus dropping down the throat, I wish, incidently, to remark, does not necessarily result from a hyper-secretion, but rather is due to an occlusion of the nares, in consequence of which the normal secretion collects in the back of the nasal cavity and is carried into the pharynx by the force of gravitation. This is an important point for you to remember, for in the treatment of this condition we are not called upon so much to use astringents, as to open the nostrils, so that the air can enter and carry off the nasal secretions. If this were a condition of mucous membrane secreting more mucus than it should, then the use of astringents would be indicated. We know from long experience that by opening the nostrils, so that a good current of air will pass through them, this symptom of dropping of mucus into the pharynx is decreased. I wish to say that almost all anterior nasal obstructions are due to trouble upon the septum rather than with the turbinated tissues, and this is very important for you to remember. I have seen cases where the whole mucous covering of the anterior turbinate had been destroyed by some caustic so that the functionating part of the nose had been irretrievably damaged, while the real cause of obstruction, a bony projection of the sep-

tum, had been left untouched. I saw a case of a young woman a few days ago where the whole turbinated covering had been destroyed by chromic acid. You might call such a condition as this a *traumatic atrophic rhinitis*, because the mucous membrane is dry, and the secretions dry into scabs. The pharynx also becomes dry, and there is a condition known as pharyngitis sicca.

Now, so far as this man's external deformity is concerned, we notice a dropping of the nose at its end and a prominence on the right side at the junction of the cartilaginous with the bony septum, as a result of the blow he received seven years ago. The cartilaginous septum should join the bony septum, as you know, in a straight line, but in this case they are placed at an angle to each other.

On examining this man's nostrils we find a few points of interest. In the first place the anterior end of the cartilage is turned to the right, and we see what is called a chondrosis on the left side of the septum—that is a proliferation of the cartilage at that point. Now, what is to be done for this condition? If he obtains a sufficient supply of air through the right nostril—and he seems to—I should not do anything here because the projection of the anterior end of cartilage acts as a protection against the dust. If it were necessary to give him a little more breathing space I should with scissors cut off a piece of this tissue, but I should certainly not adopt this procedure till I had given him a proper amount of breathing space in the other nostril. The important nostril is the other one, and here you see there is a deflection of the septum on itself. Now this convexity corresponds to the concavity just behind this prominence on the other side, and has resulted from the traumatism.

What is the operation necessary in this case? There will be no difficulty in removing, with a straight saw, what is necessary from this cartilaginous prominence. We avoid the danger of perforation by not cutting too deeply, but there are cases where the tissues are so thin that it is impossible to prevent this occurrence. The disagreeable features of perforation are that if the opening is situated anteriorily, you are apt to get a sinking of the nose from lack of support and a tendency to ulceration. We will here, as a preliminary measure to the operation, insert a piece of cotton saturated with an eight per cent. solution of cocaine, and permit it to remain five or six minutes, then we will take a swab, dip into a solution of Peroxide of Hydrogen (Marchand's) and cleanse the nostrils thoroughly. We will not proceed further with the case till we have cocainized the interior of the nostril.

We will now look at his pharynx, and there you see a condition that can be styled a catarrhal pharyngitis, with lymphatic thickenings on the posterior wall. I always like to have the gentlemen look at the pharynx the moment the patient opens his mouth. It was a very red pharynx when we looked at it first, but now, as a result of three or four inspirations through the mouth and evaporation from the mucous membrane, the color has disappeared. Now you notice little points on the posterior wall of the pharynx. That is the same condition you see in children who have enlarged adenoid tissue in the vault of the pharynx.

We see here, a localized congestion of the posterior nasal space, or posterior nasopharyngitis, and our aim is to remove this congestion. We do that in a case like this by curetting the vault of the pharynx, or applying a sixty grain solution of silver to the ounce to the part.

Now to return to this man's nasal trouble, we will remove the cocainized piece of cotton from the septum and excise a portion of this thickened tissue that I call your attention to. As this is a cartilaginous deflexion, it is proper to use a saw or a trephine for its removal. You are able to apply the saw better by having an assistant hold the patient's head at such an angle as to make the enlargement of the septum stand out prominently until the operation is completed. Having removed this portion of tissue we will take powdered boracic acid and blow it into the nostrils, and in ten or fifteen minutes repeat this procedure. The only cleansing we advise here is to have the patient blow his nose thoroughly with a handkerchief, and we use no wash until the third day for fear of washing away the clot that forms. On the third we generally use a posterior nasal syringe with a 25 per cent. solution of Peroxide of Hydrogen.

The next patient is a young man twenty years of age. As we look at his nostrils we observe a slight projection on the left of the septum. This may be a passive or hypostatic congestion and due to a posterior turbinated swelling. Now, to improve the condition in this nostril we will use the galvano-cautery, applying it to one little point, for we do not believe in creating a burning wound covering a great extent of surface. We simply make a small line with a cautery which will be sufficient to contract the general soft swelling.

There was a time when I would have called this a hypertrophy of the inferior turbinate, and perhaps would have applied the galvano-cautery, chromic acid or some other destructive agent. If you take a probe and press on the swelling of the inferior turbinated, you will find that you can push the tumor back. There is no real enlargement of the inferior turbinated, but a reflex swelling due to obstruction elsewhere.

How are we to treat such a condition as this? We should not apply any destructive agent to this part because we want it to remain intact. We might term this trouble reflex or irritative congestion due to the pressure of the septal spur against it. Rather than destroy the mucous membrane which is useful in the man's nose, we might as a compromise measure take a galvanic cautery point and insert it in the inferior turbinated down near the floor. In that way you get a reaction of this tissue without destruction of its mucous surface.

Now, while this right nostril is a fairly roomy one, it is not quite as large as the left, and as you look well in you see that the middle turbinated bone is in contact with the septum. If a little of that middle turbinated was taken off, the anterior part of the nose would be the better for it, and for that reason we will pass in between the middle turbinated and the septum a pair of scissors and remove a small amount of the tissue. Now as I do this you notice the retraction of the anterior swelling.

TREATMENT OF ACUTE AND CHRONIC ULCERS.

By JAMES OSBOURN DeCOURCY, M. D., St. Libory, Ill.

(Published by *Louisville Medical Journal*, August, 1894.)

I have found no class of diseases yielding to treatment with greater reluctance than "old sores," or chronic ulcers. Recently, however, I have adopted a plan of treatment which is quite different from that laid down in the books, and my results have been much better.

Almost without exception, internal, or constitutional, as well as local treatment, is necessary.

The internal treatment should be directed to the seat of the malady, thus eradicating the general pathological condition, eliminating the poisons and disease germs from the system.

To accomplish this object, absolute cleanliness (internal and external), plenty of pure air and sunshine, the religious observance of the laws of hygiene, and a wholesome nutritious diet, are more useful and restorative in their effects than are drugs. All the secretory organs of the body should be required to perform, as nearly as possible, their natural amount of work.

This once accomplished, and all nature's machinery kept lubricated and in good working order, the local treatment and work of reconstruction will be comparatively easy.

The sores, ulcers, acute and chronic, must be kept clean. This is done very satisfactorily by the application of hot water. If the parts can not be soaked in the hot water, an ordinary fountain syringe can be filled with water (as hot as can be borne, without burning), elevated high enough to give sufficient velocity to the stream which is played over the parts, by the operator holding the nozzle of the syringe a short distance from the seat of the application. The frequency of the washing will depend upon the nature of the case, but should be repeated as often as necessary to keep it clean and free from offensive odors.

To destroy pus and bacteria, and to aid nature in the work of rebuilding the parts invaded, I have found Hydrozone and Glycozone superior to any and all other agents tried.

Hydrozone is first applied (after the hot water) by the use of an ordinary glass dropper, or hard rubber syringe, slowly, all over the ulcer, until the pus is destroyed. Effervescence, or fermentation, continues until the enemy is quite dead, but no longer. One layer of absorbent cotton is saturated with Glycozone and placed smoothly over the parts, and held in place by a cotton bandage, sufficiently tight to hold the cotton in place.

Other local medication might do as well in some cases, but I have not so found it. The result obtained in the case I report herewith seems to confirm the statement as above made.

Edw. K., age twenty-three. American, but German descent. A farmer by occupation; unmarried. Rather small in stature, but well-built. Having taken sixteen bottles of "Blood purifier" and a lot of "Anti-constipation pills" within the last eight months for "Falling sickness," came to my office March 19th, with both legs most frightfully ulcerated, from knees to ankles, with considerable discharge of pus from various parts of the legs. Such a case should have been sent to a hospital or sanitarium, for the best systematic treatment obtainable, but, unfortunately, he was so situated that he could not be sent to such a place. In a most pleading way, he asked me if I could do him any good. I told him I thought so, if he would mind me, and take the treatment that I should advise. He promised, and the treatment was begun.

The legs were cleansed by soaking them for twenty minutes in hot water twice a day, after which Hydrozone was used freely all over the sores, to destroy the pus, the pustules having been opened, and as much pus evacuated as possible.

After this application, morning and evening, the legs were powdered all over the affected portion with a mixture of equal parts of alum, boric acid and aristol, then covered with absorbent cotton, and bound up with an ordinary cotton gauze bandage.

This local treatment was kept up for two weeks. The improvement was slow, but constant. The process of healing advanced from the knees downward, and from the ankle upward, leaving the last part to heal about the middle of the leg, where the ulceration formed a thick crust, extending two-thirds around each leg.

The constant discharge of pus from the sores caused the dressing to stick to the parts, which could not be removed without difficulty.

The alum, boric acid and aristol powder was discontinued, and Glycozone used as a reconstructive agent, from the end of the second week. The sores were washed and the Hydrozone used as before mentioned, then the Glycozone was applied to the whole affected parts. A layer of absorbent cotton was saturated with Glycozone, and smoothly placed around the sores, and held in place by a cotton bandage

There was not any further trouble about the bandage adhering to the sore. The granulation was much more rapid than at first. At the end of the second week after Hydrozone and Glycozone were used as the sole local agents, the young man said he was well, and worked every day from that time.

The internal treatment was changed from time to time as the case required. Opiates were given several times during the first two weeks of the treatment, to ameliorate the pain, which was very great at times. He was much emaciated and melancholy when he first came to me. His bowels would not move without cathartics.

Fluid extract nux vomica was given morning and noon, seven drops before each meal. Elixir lactopeptin, with bismuth, was given in drachm doses after each meal, and, occasionally, laxatives at night. Later on, tincture chloride of iron was given, in ten drop doses, after each meal, for one week.

After the third week no internal treatment was given, as the patient was in good condition, happy and cheerful.

Hydrozone and Glycozone were left to complete the structure, and place upon it the capstone of a beautiful new integument, which they did in a way gratifying both to the patient and to myself.

THE TREATMENT AND CURE OF CHANCRE WITH PEROXIDE OF HYDROGEN.

By WILLARD PARKER WOOSTER, M. D., New York.

(Reprinted from the *Journal of Cutaneous and Genito-Urinary Diseases*, for February.)

The subject of the best treatment of the primary sore of syphilis has occupied the minds of investigators of late years to such an extent that almost every surgeon has a different method, and the general practitioner is somewhat at a loss to know which is the best treatment to employ as the most expeditious means of relieving the anxiety of the patient and curing the lesion. The special purpose of this paper is to draw attention to a particular method of treatment, which not only relieves the anxiety of the patient and places him in a delightful bouyancy of mind, *but cures the chancre in the shortest possible time*, without pain or detention from business, and with less scar and less destruction of tissue than any other method.

The chancres of the following cases, selected from a good many recorded, were of the large Hunterian variety, embracing the worst forms of sloughing and phagedena.

Case 1.—Mr. K., aged 38 years, came to me, January 29, 1891, with a large sloughing single chancre, situated on the right side and at the base of the glans-penis, and at the junction of the prepuce and very deep; incubation about thirty days; penis large and soft. Sprayed it with full strength solution (15 volumes) of Peroxide of Hydrogen medicinal (Marchand's), at 60 pounds pressure, and dressed with iodol powder, and continued the same treatment every morning at 7 o'clock.

February 20, sprayed it as above; sore now only skin deep, and continued till February 23, sore healed; duration of treatment, twenty-five days.

Case 2.—Mr. W. B., came to me, September 6, 1892, with a single sloughing chancre on left glans penis, and corresponding ulceration on prepuce; incubation about thirty days; sprayed with Peroxide of Hydrogen full strength, 60 pounds pressure, and dressed with iodol; continued same treatment every evening at 7:30 o'clock, for sixteen days.

September 23, sore almost healed.

September 25, sprayed for the last time to-day; duration of treatment, nineteen days.

Case 3.—Mr. L., aged 28 years, came to me, August 23, 1893, with a phagedenic chancre, thirty-five days' incubation, situated immediately at meatus urinarious, and sloughing its way very rapidly into the urethra; sprayed it with Peroxide of Hydrogen, full strength; 60 pounds pressure, and dressed with iodol powder. Continued the same treatment every evening at 7:30 o'clock.

August 30. Sore almost healed up, only some granulations left. Continued the same treatment every evening till September 4. Sprayed it to-day for the last time; there only being the surface of the sore about the size of a pin's head. Considered himself cured and said he would not come again. Duration of treatment, eleven days.

The above cases selected from many recorded cases, on account of their possessing the worst features of the initial lesion, serve as good examples of the treatment by the Peroxide of Hydrogen method.

I treated Mr. K., of Case 1, on two different occcasions, for the same disease, in exactly the same manner, and the two cases are about identical in regard to length of time of treatment and as to details, and he got well in about the same manner.

The case of Mr. L., presented the worst features of phagedena, which was so virulent that I think he would have lost the greater part of the glans penis, if he had been treated by the nitric acid or caustic method, and as it was, the ulcer healed with a very small scar, scarcely noticeable.

The pressure of the spray (60 pounds), which is one of the most important factors in the whole method, not only cleanses and produces thorough asepsis of it, killing the

germs of the disease at the very bottom of the ulcer, but the oxygen of the peroxide aerates the blood through the capillaries, and arrest the progress of the disease at the nearest possible point, allowing the process of repair to commence as soon as possible, according to the severity of the disease, with the least loss and destruction of tissue and consequent scar. It must be particularly understood that in using this treatment, all instruments, spray-tubes and bottles, must be made of either glass or hard rubber, for the reason that metals, with one or two exceptions, coming in contact with the peroxide of hydrogen will destroy its component parts and render it useless, and I have found also a greater difference in the results if the peroxide is fresh or otherwise. The first effect of a spray of peroxide upon the ulcer is to deposit upon it a thick film of albumen; this should be allowed to remain for about half a minute or less; then continue the spraying till a large tubeful has been used (one ounce); as the sore progresses the spraying causes a good flow of rich arterial blood upon it which merely shows returning healthy conditions.

The treatment is entirely painless, and the patients do not experience any annoyance or inconvenience whatever while carrying the disease, and freely express themselves as well pleased with its effect.

No internal medication during this stage is given. The iodol powder is used only as an antiseptic, to protect the sore from external influences until it is sprayed again the next day, keeping the sore in as good a condition as it is left by the spraying, which must be done once every day until the ulcer is healed.

This method of treatment of chancre has been in my hands, the best and most successfull of all methods that I have heretofore adopted.

THE TREATMENT OF TYPHOID FEVER.

By M. A CLARK, A. M., M. D., Barnesville, Ga.

(Published by *The Food*, June, 1894, also the *Medical and Surgical Reporter*, Philadelphia, Aug. 4, 1894.)

The first duty of the physician, in the treatment of any disease, is to pay strict attention to prophylaxis and hygiene. This is especially applicable to the successful management of typhoid fever.

With proper attention to these, the majority of cases of typhoid fever will recover without any medicinal treatment. Hence, we should be very wary in making any decided claims for medicines. We do know, however, that there are remedies which will not only mitigate the symptoms but also shorten the disease itself. Such being true, it is the duty of every physician to seek diligently for those remedies and to judiciously and faithfully apply them.

In this paper I propose to set before you what seems to me to be the best of these remedies.

Before referring to the subject proper allow me to say that I fully believe that this disease is due to some powerful germ, no doubt the bacillus of Eberth, which produces not only very marked lesions in the parts invaded but also very decided nervous phenomena and great waste of the whole system. If we, then, can find some remedy that will check this dread germ in its ravages and destroy the poison it produces, we have found that remedy that will prove a most powerful adjuvant in the management of this disease. Our hope, then, lies in the antiseptic treatment. In fact, it seems to me that this plan of treatment is par excellence the one from which we may hope to derive any decided results.

Henry claims best results from thymol; Rossbach and Wolff, from naphthalin; Pepper, from nitrate of silver; Thistle, from salol; while calomel is urged by others. All of these are, no doubt, good and well worthy of trial. Having had such good results from the use of another most powerful antiseptic, I beg to offer it as the one for

treatment of this disease, even though it falls short of the definition of an intestinal antiseptic as given by Bouchard: "It should be more or less insoluble and exert no toxic action on the organism." This remedy exerts no toxic action upon the system, but it is soluble, being in itself a solution.

I refer to hydrogen peroxide, which all will admit is a most potent antiseptic when locally applied. Seeing such excellent results from its local use, I ventured to test it as an internal antiseptic, believing that it would prove most effective. Having been rewarded with most wonderful results in the few cases in which I have used it, and feeling so sure of its continued effectiveness, I offer it to you for your consideration on this occasion.

If given at onset of the disease, it will not only mitigate the severe symptoms but will also check the disease itself. The tongue will rapidly clean off; tympanites will subside or not appear at all; the diarrhœa will diminish; no marked nervous phenomena will ensue; and the disease will spend its force with but comparatively little wear upon the system.

I give from 20 to 40 minims of some reliable 15-volume solution, preferably Marchand's, well diluted, every two or three hours until slight nausea is produced, and then every four or six hours till convalescence is fully established.

With its use from the beginning I find no necessity for antipyretics, the temperature never rising sufficiently high to authorize their use. If, however, it becomes necessary to resort to some means of reducing the temperature, I prefer phenacetine in 5 grain doses every four or six hours. The Brand method may work well in hospital practice, but it cannot be used effectively in ordinary private practice. If the phenacetine is followed by, or given with, a mild stimulant and used only to reduce high temperatures, there will be no unpleasant effects at all. I cannot say so much for the other coal tars, or even quinine.

I begin at the outset to attend carefully to the diet of my patients, striving to prevent all the waste possible by giving proper nourishment. Milk is by far the best diet. Given in small quantities and at frequent intervals, it is usually well borne. If not well tolerated, it may be peptonized and then given without ill effects. Horlick's malted milk, beef tea and some reliable beef extract are usually easily assimilated and are valuable aids to the milk. Solid food is rigidly withheld.

Water should be given, not only in connection with the medicines, but also at frequent intervals, whether called for by the patient or not. It is cooling and refreshing to the patient, aids in the elimination of poisons from the system by its diuretic effects upon the kidneys, and keeps up the normal amount of body-fluids. It should be deemed one of the important factors in the treatment of this disease.

The mineral acids, inasmuch as they are aids to digestion, should be given in small doses well diluted three or four times daily. I prefer dilute nitro-hydrochloric in ten minim doses three times a day.

Alcohol should no longer be considered routine treatment but should be used only when the symptoms absolutely indicate. Properly treated, few patients will require the frequent use of any alcohol. When used, it should be given most cautiously, as too much will cause unfavorable symptoms and is worse than not using at all.

Turpentine stupes, or turpentine locally applied, may be used with benefit, whenever there is tympanites. I find it unnecessary when using Peroxide of Hydrogen.

If the diarrhœa is excessive, as many as six or eight stools in twenty-four hours, it should be controlled by nitrate of silver, bismuth or some other astringent. I prefer bismuth subnitrate in 15 to 20-grain doses or salicylate in 5 to 10-grain doses every two or four hours. I have no trouble with the diarrhœa, but if it should become troublesome; I would employ in connection with the bismuth occasional enemata of weak solutions of hydrogen peroxide, having found them very effective in the summer diarrhœas of children.

If the Peroxide of Hydrogen is given from the onset of the disease, the so-called typhoid phenomena, low muttering delirium, subsultus tendinum, picking at the bed

clothes and so on, will not occur. If, however, I should be so unfortunate as to have to deal with them, I would rely solely on the sedative dose of calomel. It will quiet such nervous phenomena when nothing else will, and, too, without any unpleasant effects upon the organism.

Other complications must be treated according to the usual methods. I believe, however, they will rarely occur, if this treatment is used from the beginning.

During convalescence, it is very essential that the patient be rigidly dieted. The liquid diet, with a little broth, milk-toast, soft boiled eggs, should be given till the third week of convalescence, and even then solid food should be used most cautiously.

I herewith submit two cases illustrative of the results of this treatment:

James R., age 10; family history good; previous health good. Had been sick with typhoid fever ten or twelve weeks and was in the beginning of the second relapse, so-called, when I was called in. Having been poorly nourished, he was anæmic and much emaciated. Saw him first in the afternoon. Temperature 106 F., pulse 140, weak and irregular, marked tympanites, pain and tenderness in right iliac region, very restless, slight delirium at intervals.

Gave three grains of phenacetine, with four teaspoonfuls of brandy every four hours to reduce high temperature. Gave Peroxide of Hydrogen one ounce during the twenty-four hours. Milk at frequent intervals. In 36 hours temperature was under control, tympanites rapidly disappearing, delirium absent, patient comfortable and begging for bread. Continued the Peroxide and nourishment. In one week the temperature was normal and convalescence was well begun. Recovery was rapid and complete.

Annie L., age 9; family history good; previous health good. Had just returned from a visit to a place where there was an epidemic of typhoid fever. Had been sick a little more than a week when I first saw her. Symptoms showed a case of typhoid fever of no mild type.

Began at once with 20 minims of hydrogen peroxide every three hours. Gave 5 minims of dilute nitro-hydrochloric acid three times daily. Milk in small quantities and frequently repeated. Used phenacetine and salol 1½ grains each to control restlessness and produce sleep during the first two days. Afterward, continued the Peroxide and nourishment. In less than three weeks temperature was normal and convalescence was fully established. Recovery was rapid and complete, there having been comparatively little exhaustion of strength and vitality.

PEROXIDE OF HYDROGEN (MEDICINAL).

By Dr. G. W. PICKERILL.

(Reprinted from the *Medical Free Press*, Indianapolis, Ind., June, 1894.)

He who does not avail himself of the superior benefit of Peroxide of Hydrogen (Marchand) in the treatment of open wounds, ulcers, scrofulous and syphilitic abscess, "sores," etc., as a corrector of morbid action and pus destroyer, is denying himself of the most powerful agent yet introduced for such purposes. Its beneficial effects are seen at once in the destruction of fetid pus and other morbid products when applied to an old scrofulous or syphilitic sore.

Two cases of syphilis with large open sores will illustrate the rapid action of Peroxide of Hydrogen. The first was a most formidable affair of seven years' standing; the open sore involving ⅞ of the ankle joint—with the joint enlarged to twice its healthy size. This sore had been dried, patched and healed over a number of times, but such a healing proved of no permanent benefit, for the sore would soon open in a worse state than before. There had been no effort to clean the morbid, dead products from the base of the ulcer, thus "dried" and "scabbed" over became, as a matter of course, a source of irritation and ulceration. Such procedure is very bad surgery for any kind of ulcers.

A few weeks' treatment with Peroxide of Hydrogen (Medicinal) dressing with Glycozone, and the ulcer was as clean and healthy looking as need be, and proceeded to heal from bottom and edges without further trouble. And remains healed and healthy. Will keep patient under appropriate constitutional treatment for two years.

Case second was of more recent date. Knee involved. Although had had constitutional syphilis, the action in the knee was more the character of tuberculosis of the joint. Proceeded to suppuration, opening just below the patella. Treated with Peroxide of Hydrogen and Glycozone locally.

The recovery was all that could be desired.

Not so perplexed with these syphilitic and tuberculous ulcers and abscesses since Peroxide of Hydrogen and Glycozone were handed to us.

HYDROZONE.

By W. C. WILE, A. M., M. D., LL. D., Danbury, Conn.

(Reprinted from *The Prescription*, July, 1894.)

It was that brilliant young surgeon, Dr. Robert T. Morris, of New York City who, when he read his paper four years ago, entitled "The Necessary Peroxide of Hydrodrogen," touched a key-note which echoed through the world.

Many indeed knew of its uses and value, of course, before this time, still the masses of the profession were practically ignorant of its wide range of usefulness and the wonderful, almost magical power it possessed, let alone the knowledge of the fact that such a product existed.

Morris related his experience which started men thinking and active, while the result was great good to suffering humanity and a rapid stride toward exactness in the science of medicine.

We feel quite confident that when he turns his attention to the new product of Charles Marchand, Hydrozone, that he will be much more enthusiastic about it, as Hydrozone is stronger and superior to Peroxide of Hydrogen.

Hydrozone is twice as strong as Peroxide and twice as active.

It works with much greater rapidity, hence more effectively, for in every operation, no matter how trivial, it is essential that it be performed as quickly as is consistent with good and thorough work in order to lessen shock, and anything that will reduce the time to a minimum, will be sure to attract the immediate attention of the conscientious and progressive surgeon, and meet a hearty reception.

The point we mean to lay particular stress upon at this time, is the powerful hæmostatic action of Hydrozone. In this respect it excels anything else that we know of for rapidity of action and effectiveness of work.

This is particularly true of the venous and capillary oozing. This form of hemorrhage is many times the most troublesome and difficult we have to deal with, especially when it occurs in a cavity which it is necessary to dry well before closing and applying dressings.

It is not, however, confined to this class of hemorrhage, as a recent case that came under the editor's care will illustrate. A lad nine years old while attempting to chop some kindlings, let the axe slip, and the heel of the instrument penetrated the instep of the right foot, severing an artery.

There was no ether at hand and the office a long way off, while every effort made to pick up the artery resulted in almost convulsions in the excited and nervous boy. A pledget of cotton was saturated with Hydrozone, and well packed into the wound, dressing the whole with gauze bandages in abundance. The hemorrhage ceased at once,

and the dressings were allowed to remain *in situ* till the following morning when the patient was put under an anæsthetic and the wound properly dressed. No ligation was necessary and the case made an uninterrupted recovery.

Dr. Elmer Lee, of Chicago claims also that Hydrozone is better than the peroxide for internal administration, he having given both in a large number of cases of typhoid fever.

PEROXIDE OF HYDROGEN IN CONJUNCTIVITIS.

(Published by *Medical Fortnightly*, April 2, 1894.)

Lautenbach, *Therapeutic Gazette*, advocates the use of Peroxide of Hydrogen in conjunctivitis. He has been quite successful in the treatment of this troublesome disease by the following method: From 10 to 30 drops of the solution, full strength, is instilled at the outer canthus of the eye, and with the fingers a degree of massage is applied over the entire surface of both eyelids. A second, third or fourth application can be made if necessary. In trachomatous cases the eyelids should be everted and rubbed with the rubber end of the eye-dropper. A saturated solution of boric acid is then used to irrigate conjunctival cul-de-sac. The inflamed surfaces are thus cleansed and ready for whatever application is necessary. The treatment is not intrusted to the patient, but is performed by the surgeon himself, once or twice a day, or a few times a week, according to indications. Dr. Lautenbach says it is important to have peroxide test beyond ten volumes, that it should not lose its oxygen on slight change of temperature, and, most important of all, that it should not contain any free acid. Undue amount of free acid causes pain and untoward effects. On account of the uncertainty of preparations fit for use, Marchand's should always be procured. The lids should be everted and thorough exposure of conjunctiva had; it is then cleansed by warm solution of boric acid.

HYDROGEN DIOXIDE.—H_2O_2.

By L. D. KASTENBINE, A. M., M. D.

Professor Chemistry, Urinology, and Medical Jurisprudence Louisville Medical College; Professor Chemistry Louisville College Pharmacy.

(Published by *Louisville Medical Monthly*, July 1894.)

This remarkable liquid which contains the greatest percentage of oxygen of any compound known, was for some time, considered as a mere solution of oxygen in water, and consequently was called oxygenated water. It was afterward obtained free from water and found to be a definite chemical compound of hydrogen and oxygen, and differing from water in containing twice as much oxygen. In this state it is a heavy, oily liquid, readily decomposing at ordinary temperatures, but if heated, with explosive violence, being converted into ordinary water and oxygen gas. When poured into water it sinks, being nearly half again as heavy as that liquid, but is miscible in all proportions with it. It has a somewhat bitter, astringent taste, and is colorless, transparent and without odor. It contains 94 per cent. of oxygen gas by weight, and will yield 475 times its volume of that gas. It bleaches the skin, hair, ivory and destroys organic coloring matter, pus and all organisms with which it comes in contact by liberating oxygen gas in a nascent or active state. It is resolved in oxygen and water by certain metals, such as gold, platinum, silver and mercury in a state of fine subdivision, although the metals themselves undergo no change whatever. If the oxides of these

same metals are brought in contact with it, not only does the hydrogen dioxide lose oxygen and become water, but the oxides lose their oxygen and are reduced to the metallic state, thereby evolving an additional amount of oxygen.

Strange as it may appear, with all its energetic oxidizing action, it has no effect on phosphorus, a substance which is so readily oxidized by the air.

The preparations found in commerce are only solutions of this compound in water, and sold in different degrees of concentration or strength, rated by the number of volumes of oxygen gas they can be made to yield. A fifteen volume solution is one that will give off fifteen volumes of gas from one volume of the solution. A ten volume solution will yield ten pints of oxygen gas from one pint of the solution, and so on.

These solutions, although more stable than mere concentrated preparations, nevertheless decompose and lose their nascent oxygen on which its powerful antiseptic powers depend, and consequently we find the commercial brands varying considerably from their reputed strengths. The solution I find containing the greatest percentage of available oxygen, is the preparation known as Marchand's, which, when perfectly fresh, is about a fifteen volume solution.

There are quite a number of different methods of preparing aqueous solutions of this interesting compound besides the original method of Thenard, the discoverer. Usually, however, barium dioxide in the hydrated state and purified from all foreign matter, is decomposed by such acids as will make an insoluble compound with it. The United States Pharmacopœia has adopted this compound under the official title of Aqua Hydrogenii Dioxidi, gives a process of preparing it and describes it as a slightly acid aqueous solution of hydrogen dioxide, containing, when freshly made, about 3 per cent. by weight of the pure anhydrous dioxide, corresponding to about 10 volumes of available oxygen. It is made by the action of phosphoric acid upon barium peroxide. It must be borne in mind that it is essential to employ a small amount of free acid to preserve these solutions, but if too large a quantity it would be a source of irritation when applied to denuded surfaces and inflamed mucous membranes, and consequently, officially, a preparation requiring more than 0.5 c. c. of volumetric caustic potash solution to neutralize .50 c. c. of it, does not come up to the U. S. P. standard.

Of the various brands of commercial dioxides I have examined, I find Marchand's to be the one which yields the largest amount of available oxygen under all conditions of exposure, and the one which contains the minimum percentage of free acid. All the marketable articles I have seen are free from barium compounds, but the majority do not come up to the fifteen volume standard, but are 6, 8, 10 and 12 volume solutions.

In addition to its medicinal uses, hydrogen dioxide can be employed to detect blood, in conjuction with freshly prepared tincture of guaiac. Although tincture of guaiac turns blue with a variety of substances, blood is not one of them. So in testing for a stain—say on clothing—moisten the spot with water, and afterwards apply a piece of white filter paper; the slightest straw-colored stain on the paper suffices. Now, add to the spot on the paper a few drops of the guaiac tincture—no coloration. Add a few drops of the solution of peroxide, when instantly the spot turns of a deep azure blue. Of course if the spot turns blue by the guaiac alone, it can not be due to blood, yet it is possible blood may be present in some other substance which has that property, and hence the employment or peroxide, in that case, would be a source of fallacy. If there is no bluing by guaiac and peroxide together, then absolutely no blood is present.

Hydrogen dioxide can be determined quantitatively by permanganate of potassium solution acidified by sulphuric acid, and the quantity of oxygen gas evolved measured in an instrument called a nitro-meter, and calculated for normal pressure and temperature. One half the oxgen evolved comes from the dioxide and the other half from the permanganate solution.

Another method and the one commonly employed, is to add a volumetric solution of permanganate of potassium from a burette to a measured portion of the hydrogen dioxide solution, diluted with water and acidulated with sulphuric acid, until the permanganate solution is rendered colorless, and then a few drops more of that re-agent

employed till a permanent faint pink coloration is given to the dioxide solution to indicate the completion of process. A slight calculation will give the strength of solution. There are other methods but the two indicated are the best.

A solution of Peroxide of Hydrogen is usually tested by pouring a drachm of it in a clean test tube, together with an equal quantity of ether, then pouring into the tube a few drops of bichromate of potassium solution, and shaking the tube, when the ethereal layer will become a beautiful azure blue color, due to the formation of perchromic acid which dissolves in the ether.

To a few drops of nitrate of silver solution, add aqua ammonia enough to precipitate the oxide of silver, then add hydrogen peroxide when finely divided metallic silver separates. A solution of titanic acid in oil of vitrol and diluted will yield a yellow color when added to soultions of the peroxide.

DISEASES OF THE ALIMENTARY CANAL.—TREATMENT.

INTERNAL AND EXTERNAL HYDROTHERAPY.—MEDICATION.

By JAMES OSBOURN DeCOURCY, M. A., M. D., St. Libory, Ill.

(Read before the St. Clair Co., Ill., Medical Society, June 7, 1894.)

Cleanliness is said to be next to godliness—a very old adage which I have found to be no less true in the treatment of all diseases which have come under my observation. It is my custom to first make clean my patient, outside and inside so far as practicable, by the free use of pure water and good soap. I have never seen or had a bad result from the use of these agents. I am of the opinion that in many cases all the medicine that is needed is the free, judicious use of water, abstinence from food, plenty of pure air and sunshine.

These agents, together with a clear conception and observation of the laws of hygiene will figure very conspicuously in the future of medicine.

While I am a strong advocate of the free use of water in the practice of medicine, I also have confidence in the therapeutics of drugs, and as I believe, have seen many good results from the intelligent use of them.

In the treatment of disease there are three distinct steps. They are; 1, correct diagnosis—ascertaining the cause; 2, absolute cleanliness by irrigation internally and the free use of water externally, and by the use of disinfecting agents; 3, repair the damage—heal the wound—restore nature—rather assist nature in her work of reconstruction. This should be done by the skillful use of the tools best adapted to the work to be done.

In treating diseases of the alimentary canal generally, and in the three following cases which I report to you I have endeavored to follow the foregoing principles. My results are all that could be desired. They have been both interesting and profitable to me, and I trust they may be of some interest to this society.

Case 1.—Miss Mary; aged 29; American; fawn type; medium size and rather stout; was taken at night with pain in the lower bowels, followed by watery stools.

I was called in the early morning, March 15. Found her excited and suffering very much pain in the bowels; also complained of severe headache. Temperature was slightly elevated. Pulse regular, but rapid and weak. She gave history of having had several severe attacks of ulcerative colitis, during one of which she came very near to death's door.

There was some tenderness on palpation and percussion over the major part of the abdomen and the bowel was very active in evacuating itself. The stools were thin, and continued mucus with a little blood. When food was taken into the stomach, especially milk, it was usually ejected in curdy masses within a few minutes.

The usual agents were used to abate the pain, to check the vomiting; also to restore the bowel to its normal condition.

The pain was greatly reduced and the rebellious condition of the stomach almost entirely overcome; but the bowel persisted in its active work of draining the system. The stools became offensive, containing more blood and mucus.

A portion of the lining membrane of the intestine about eight inches in length was passed with the feces the fourth day. Having a four ounce bottle of Glycozone, I concluded to try it. So other internal agents were discontinued, a 2-drachm doses of Glycozone given every four hours in a wineglass of water. The bowel was washed out morning and evening with warm soap water, followed by an ounce of tepid water containing a half drachm tinct. opium.

At the end of the first day after beginning the last method of treatment there were marked signs for the better; and the patient expressed herself as feeling less bad. The treatment was continued with constant improvement in the case until the Glycozone was all taken, at which time the bowel and stomach were under good control. Pain was all gone; and after a few days of convalescence the patient made a perfect recovery without any further treatment.

CASE 2.—Ely, aged 32, medium-sized man, general health uniformly good; blacksmith by trade. First saw the case with Dr. S. at 5 P. M., March 30.

On arrival at bedside of patient, I found him in what seemed to be a semi-comatose state. The odor of whiskey was very marked. Examination of the matter ejected showed it to contain blood and mucus.

A few drops of chloroform with cold water was given, and a cold pack placed over the epigastrium to check the vomiting. The following powders were given to quiet the stomach and to move the bowel:

℞ Calomel, gr. viij.
Podophyllin, gr. ij.
Subnitrate of bismuth, gr. xij.
Bicarbonate of soda, gr. iv.

M. Pulvis, No. 4. Sig. Dose, one powder every hour.

The father, mother and wife of the patient gave the following history:

"For the last five years the patient has been drinking whiskey, and for the last two years, in particular, he has been drinking too much. Last October he had an attack somewhat like this, but recovered in about one week.

"His general health has always been good. He has been drinking too much every day for a week now—keeping his whiskey in the shop. He was well this morning. Worked in the shop until noon. Ate a hearty dinner, but was taken sick soon after eating and in a short time began to vomit."

Called again at 5 P. M. Found him quiet, but suffering. Left some Dover's powders to be given during the night if necessary.

At 2 A. M., March 31, was called again. Found him excited and suffering very much. Quick pulse and slight elevation of temperature. Gave him hypodermic injection:

℞ Morph. sulph., gr. ¼.
Atropin, gr. 1-150.

His wife gave history of his vomiting at irregular periods until 10 P. M., after which time nothing would pass either up or down. Impossible to swallow water. Upon careful inspection the whole mucous membrane lining the mouth and throat as far as could be seen was in a state of hypertrophy. Indeed, it was simply cooked. (Pardon the use of the word, cooked; but it expresses the condition.) The stomach, also, was in a state of inflammation. What was to be done?

Internal medication and alimentation was out of the question. Recognizing the emergency of the case, I determined, if possible, to dissolve the mucus about the affected parts, and to attempt to reduce the edema of the membranes.

The nose and throat, therefore, were sprayed every twenty minutes for awhile with

Hydrozone and a 20 per cent. solution of the same used as a gargle every hour, until he could swallow water, which required forty hours. An enema of warm soap-water was given and repeated, which produced a soft stool; and he expressed himself as feeling better.

The spraying of nose and throat, together with the gargle, also the enema, were continued every day. The inability of the patient to swallow made alimentation by the stomach impossible, to say nothing of the inability of the stomach to perform the work of digestion. Boiled milk and warm soups were regularly given in small quantities by the rectum.

On the morning of April 7, the whole lining membrane of the esophagus was expelled in the attempt to vomit. The membrane was neither broken nor perforated; but was turned inside out. I have preserved the specimen in an alcoholic solution; and take pleasure in presenting it herewith for your inspection and examination.

"A" "B"

Photograph of the mucous membrane expelled from the Esophagus of Ely. Cut "A" illustrates the ragged surface of the membrane as torn from the muscular coat of the tube.

Cut "B" illustrates the smooth surface of the same membrane over which food was passed, the membrane being turned inside out, just as when expelled. The size of these cuts are two-thirds of the photograph of the Esophagus. The cardiac end of the membrane being at the bottom of the cut in each case.

There was some fever most of the time. The temperature running up as high as 102. The pulse varied from normal to 90, and a few times went up to 100.

The general condition of the patient was fairly good—indeed, much better than could have been expected.

There was very little headache, but a lancinating pain in the left hypogastric region was greatly accelerated by coughing, and there was more or less tendency to cough during the first week.

I might state here parenthetically that, in my judgment, the trouble in the side had

no connection with the condition of the mouth, throat and stomach; but, on the contrary, was entirely and wholly independent of it.

The history given of the case showed the last named trouble to have been produced some five year ago by prolonged arduous labor in which the abdominal muscles were in a constant strain for hours. Since which time the trouhle has returned at different periods; and almost invariably following protracted, or great straining of the muscles in that regron. The treatment given was palliative.

The odor coming from the mouth of the patient was offensive from the first, and continued to grow more and more offensive until after the expulsion of the membrane.

The kidneys performed their work admirably well. The stools which followed the enemata of warm water were rather soft and of a greenish color.

There was no hallucinations, no delirium; and for the most part sleep was good.

To prevent septicemia, to assist nature in the work of reconstruction, as well as to counteract any miasmatic influence that might be present the following preparation was given:

℞ Quininæ sulphatis, ℈ij.
Acidi sulphurici aromatici, cc. v.
Aquæ camphoræ,
Aquæ destillatæ, aa ℥ ij.

M. Sig. One dessertspoonful every two hours, being alternated by half drachm doses of Hydrozone, 20 per cent. solution, given in a third of a glass of water.

Gradually, but slowly, the condition of the patient grew better, with the exception of one day, at which time he had no Hydrozone. The other medicine "Would not work without the gargle," as he expressed it; "But worked well together."

Immediately after resuming the use of Hydrozone he began to feel better. Saw him April 9th. Found him in good condition. Pulse and temperature normal. Expressed himself as feeling very well.

He had been sitting up most of the time for several days. I recommended that the treatment should be continued for some time.

A week later his wife called at my office stating that she thought he was doing very well. Since which time I have had no official report from the case.

My candid opinion is, that of all the agents used, the one to which he owes the preservation of his life during the first seven days of the attack is Hydrozone.

CASE 3.—Bennie, little boy, aged 9 years, orphan, German, was brought to my office May 20. Had diarrhœa which had become chronic. Also had intermittent fever —mild form. He was very much reduced in flesh and emaciated.

Various and numerous agents from the list of ordinary remedies were used during the four succeeding days; but the diarrhœa was growing worse rather than better. The stools became very numerous, the actions amounting to ten or twelve at night with as many more during the day. The malarial fever received appropriate treatment and was readily subdued.

May 26 I planned a new treatment. The patient was thoroughly sponged from head to foot once a day with tepid alkaline water. The bowel was washed out *clean* morning and evening with soap-water, just warm enough to be comfortable to the patient. After the bowel was washed out, 2 ounces of starch water containing two drachms of Glycozone was thrown into the rectum, and left to be absorbed. The internal treatment consisted of a milk diet, fresh water to drink impregnated with Hydrozone, and dessertspoonful doses of Glycozone taken every two hours during the day in a wineglassful of fresh water.

Improvement began with this treatment. The skin and bowel was kept thoroughly cleansed every day as well as medicated, the bowel being irrigated twice each day. June 4, the child was reported well. His general health is rapidly improving.

Good or bad, this treatment is purely original with me.

What effected the cure? My answer is this:

1. Removing the cause. This was done by abstinence from all solid food.

Aliment was restricted to small quantities of pure, fresh milk, beef and chicken soups, given at regular periods.

2. By cleansing the affected parts, as before stated.

3. By healing the wound. This was done by the use of Glycozone, which I have found to be one of the most reliable and rapidly-healing agents that I have yet used. The hydrogen was used as a disinfecting agent.

May we not reasonably expect that during the remainder of the present decade, and for all time to come, internal as well as external cleanliness shall be to suffering humanity a boon—a heavenly unction.

NOTE.—I have, for some time, substituted Hydrozone in my practice instead of Peroxide of Hydrogen as formerly used.

Hydrozone is "double strength" hydrogen peroxide—so to speak. In other words, it has twice the bactericide power, and, therefore, requires only one-half the quantity to accomplish the same results.

It is not disagreeable to the patient when taken internally, if well diluted with pure fresh water.

CHOLERA.—PREVENTION AND TREATMENT.

BY ELMER LEE, A. M., M. D., Chicago, Ill.

(Reprint from *The Chicago Clinical Review*, for April, 1893.)

A mass meeting of physicians, for the consideration of the above subject, was held at the Great Northern Hotel, Saturday evening, March 18, 1893, under the auspices of the Practitioners' Club, of Chicago. There was a large attendance.

Dr. C. D. Wescott called the meeting to order at 8:20 P. M., and Dr. DeLaskie Miller was chosen Chairman of the meeting in the absence of Dr. N. S. Davis.

Dr. Miller in his opening remarks said: This is an unexpected honor, to be called upon to fill the place of the gentleman who is unavoidably absent; but as the Chairman of this meeting is to be little more than a figurehead, I will accept the honor with thanks. This is an important meeting, and I trust that the attention and interest of it will be given to the gentlemen who will occupy the time. Without further remarks we will proceed to the business before the meeting.

After remarks made by several medical gentlemen on the different phases of the subject of Cholera, Dr. Elmer Lee, of Chicago, read the following paper:

The leading proposition suggested and tried in the treatment of Asiatic cholera, during the epidemic of 1892, in Europe, consisted of the following general plans. Early in the epidemic, lactic acid treatment was proposed on the ground that it would neutralize the akaline accumulations in the bowels, and so stop the multiplication of the bacilli.

An Englishman, residing in Paris, considered Cholera a hyperæmia of the spinal cord. His proposition was ice poultices continuously applied to the region of the whole spinal column. A small pamphlet was published by the doctor in defense of his conclusions, and to present testimonials in favor of his congestion theory. As this system of management was not seriously considered by cholera physicians, its efficacy cannot be stated.

The use of large doses of the Russian remedy, salol, the invention of Prof. Nenski, of St. Petersburg, grew in favor as a new remedy during the epidemic. The average result of cases so treated in St. Petersburg, and by my American colleague, Blackstein, in Baku, and in other provinces in Southern Russia, could not be said to be satisfactory. Finally, at the close of the epidemic, its influences had come to be considered less and less valuable—this, however, can be said—it was in all and all more largely used than any other new remedy. Still it would not be safe to put too much trust in it.

Calomel was everywhere a remedy even more used than salol. Formerly this drug was used in very large doses, but last year it was the very small doses that found favor. Especially was this true in the treatment of cholera in Hamburg.

Of the surgical measures, the infusion of solutions of salt were most practiced. The solution consisted of distilled water in which was dissolved one-half of one per cent. of common salt. This liquid was warmed to the temperature of the blood, and either introduced directly into some large vein, or injected, with a long needle and a large barrel syringe, beneath the integument of the abdomen. The amount of salt solution used in either case would be from one pint to one quart each time. In one case treated at Hamburg as much as thirteen quarts of salt water were used from first to last. The patient recovered. The subcutaneous injections were frequently followed by cysts and sometimes abcesses appeared. Intravenous injections sometimes proved a godsend, but more frequently disappointment could be said to be the result. These injections were only used in the third period of the disease, or the stage of collapse, algidity or asphyxiation, at which period, it would be rather unreasonable to expect recovery by virtue of any treatment.

The Italian treatment, as it was called in Russia, was much used and with frequent gratifying success. The practice was introduced by Prof. Cantani. It consists of a clyster composed of the following constituents.

Boiled water or infusion of chamomile (warm), 2 litres.
Tannin, 4 to 10 grammes.
Laudanum, 5 to 10 drops.
Powdered gum-arabic, 50 grammes.

This or some part of this solution is occasionally passed into the rectum, to be retained if possible by the patient. In the experience of those who have followed this method of treatment, almost every case taken at the beginning of the disease has lived. It is certainly more reasonable in principle than simple drug management.

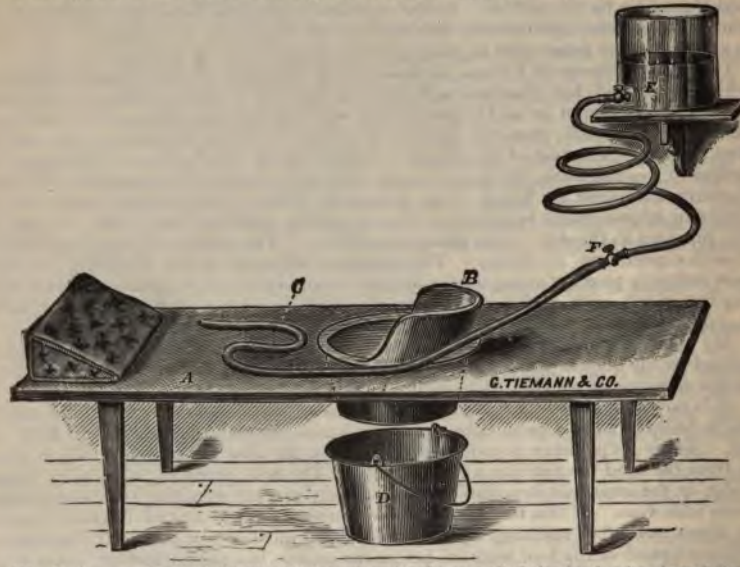
Of the experiments of Ferran, of Spain, and Haffkine of the Pasteur Institute, much has been said, but what has been said has failed to bring conviction to my mind. As cholera itself cannot be said to protect one who has had the disease and recovered, against a second attack, then that which is less than cholera in influence cannot be expected to do it. The seat of the disease is located in the intestines, and, so long as the infectious juices are there, the lymph vessels, in the processes of physiological function, will continue to infect the blood. Can we hope to thwart physiological action of absorbents by hypodermatic injection of cholera culture, made at some time, it may be years, previous to the date of the passing epidemic? The answser by my judgment, is that such expectations are flimsy. The caprice of Stanhope at the Hamburg Hospital cannot seriously pass for an argument in favor of anti-choleraic vaccination. His interesting but widely exaggerated stories were the product of a newspaper's love for sensation, and profit of increased sales of newspapers.

My own personal thoughts concerning cholera and the method of treatment, as practiced by me both in Russia and at Hamburg, during the epidemic of 1892, will occupy the remaining time allotted to me.

It is now well known that cholera is a disease of the alimentary canal. Its inciting cause is believed to be a germ taken into that canal through the medium of food and drink. There its presence is protested against by the absorbent vessels, which eliminate from the food the nutriment for the body. The first symptom produced by foreign invasion in the intestines is a diarrhœa, which may preceed vomiting from one to three or even four days. If this be true, the bowels must be the seat of disorder, and the most direct method of reaching them by medication must be the best. If the stomach could be emptied of the foul material before the poison has passed further, there might be speedy relief and, indeed, no real cholera. After it has passed into the intestines, medicine administered through the stomach may be slow in reaching the seat of the disease, and even then can only mingle with the poison, holding out the hope that the one will be neutralized by the other. This hope, in truth, is seldom realized. But if the poison can be removed from below, the course is left clear for nature to recuperate itself. The diarrhœa is an evidence of the great exertion put forth by the organism to rid itself of the death-dealing agency, and probably it would be effectual in the great majority of cases, were it not that the nervous forces of the system are exhausted by the

terrible strain, before the required evacuation of the bowels is completed. A large irrigation of hot water, made soapy, preferably by neutral liquid soap, introduced into the colon through a suitable rubber tube, is the simplest, and I am prepared to say further that it is a more satisfactory way of treating cholera than any other with which I am acquainted. The time to begin the irrigation is at the very earliest possible moment. Save the blood every single moment of infection by immediate action even if there is the faintest suspicion of cholera either with or without diarrhœa. In every post mortem seen by me in cases of death in which there had been no marked diarrhœa, the colon and intestines were filled with accumulations of choleraic matter, which swarmed with coma bacilli. The rule from which there need never be deviation is to treat the patient by irrigation of the bowels and rinsing of the stomach without waiting for confirmation of the diagnosis either with the microscope or by the culture test. The best part of the practice is always to save the patient, even at the expense of fine statistics. The accompanying illustration explains the manner of using irrigation of the intestines. Such apparatus is suitable for places of public treatment of the sick. In private practice the syringe would take the place of the irrigating apparatus.

The irrigation is accomplished by means of a soft rubber tube F, one meter in length and of suitable size to be introduced into the rectum, in front of the promontory of the sacrum, into and up through the sigmoid flexure and into the descending colon. This tube which is connected with a glass reservoir E, should not be too small nor too



(Dr. Lee's apparatus for irrigating the intestines for the cure of cholera and other bowel diseases. Used first in St. Petersburgh during the cholera epidemic of 1892.)

large in order to facilitate its introduction through the folds of the sigmoid portion of the lower bowel. In fact, the greatest difficulty to be encountered, is to successfully pass the tube in front of the promontory of the sacrum, and enter into the sigmoid flexure. The tube should be of proper firmness to prevent it from bending or buckling upon itself when the end (which in all cases should be rounded) comes in contact with the obstructing folds of the intestine.

For internal treatment my experience taught me that the *medicinal Peroxide of Hydrogen of Marchand**, given in cupful doses of the strength of 4 per cent., or even much stronger, was a better antiseptic than any other drug heretofore known in the treatment of cholera. Then the treatment would be, first, immediate irrigations of hot water and soap, using from one to three gallons at a time twice a day for the first and second days. Once a day afterwards, if required, which is seldom the case. At the same time cleanse the stomach with *medicinal Peroxide of Hydrogen** and hot water used freely—by urging the patient to drink. The feeding and nursing are the same as would be required by a patient suffering from septicæmia or other prostrating disease. My belief is based upon personal experience, and the following surgical measures and medical treatment, viz.: Irrigation of the bowels, *always first* with hot water made soapy with neutral liquid soap or a good castile soap; second, cleansing and rinsing the stomach with hot water and *medicinal Peroxide of Hydrogen**, continuing till it is well washed; third, food and nursing; fourth, *medicinal Peroxide of Hydrogen of 4 per cent, strength** given in cupful doses at intervals of two hours during the sickness till convalescence; fifth, meet the requirements as they come up, as would be done in any other grave disease, using whatever personal experience has taught us to believe is good. Cleanse the bowels, wash the stomach, feed the sick, keep them warm if cold, and reduce excessive heat by the cool bath rather than reliance upon drugs, using anything in an emergency that is the easiest and the most accessible to procure. The cholera patient may be convalescent inside of the first few days, or if not convalescent and not dead, the case goes into the typhoid state, after which convalescence may be deferred for several weeks, or death may be the conclusion. The temperature prior to the fifth day is generally subnormal or a little above, but on the fifth day marked exacerbation and elevation of temperature indicates the typhoid condition.

THE CHAIRMAN: It is a most fortunate circumstance that we are alive to-day. We must all of us feel confident that we have passed from the old to the new dispensation, which cannot but strengthen our faith like the anchor cast within the vale. We know what cholera is; we know that we can limit its spread in our city. This is a great confidence, and will do much for the comfort of this community. This idea should be spread throughout the length and breadth of this great city.

NOTE.—Since reading the foregoing paper, Hydrozone has been substituted by Dr. Elmer Lee instead of Peroxide of Hydrogen for reasons given on page 39, article headed Treatment of Typhoid Fever.

CHRONIC CERVICAL ENDOMETRITIS.—OSMOTIC TREATMENT.

BY WALTER S. WELLS, M. D., NEW YORK.

(Reprint from the *Chicago Medical Times*, July, 1894.)

Acute inflammation affecting the uterus, shows a marked tendency to invade the entire organ, and to involve both the body and the cervix.

But chronic inflammation, being of a lower grade of intensity, is more apt to be limited to the mucous membrane of the body of the organ, or of the neck.

There is, however, nothing absolute as to such limitation—sometimes subjacent parts being more or less implicated, and in other cases the mucous membrane of the entire organ may be simultaneously involved.

The term, chronic cervical endometritis, is here applied to chronic inflammation of the mucous membrane extending from the os externum to the os internum. This condition, like many others, has been described under various titles, and is known as Cervical Catarrh, Cervical Leucorrhœa, and Endocervicitis.

*Hydrozone now takes the place of Peroxide of Hydrogen, the strength is double, the dose one-half. See note.

It is regarded as the most frequent of all diseases of the female genital organs, and although not itself a malady of dangerous character, may give origin to some of the most serious and obstinate uterine disorders.

The cervix uteri being exposed to injury during coition,—to laceration during parturition,—and to irritation from walking, riding and lifting, it is not surprising that it is frequently the seat of disease.

The chronic cervical inflammation is a frequent cause of menstrual derangements, and frequently produces sterility—the tenacious, thick glairy discharge from the cervical glands preventing entrance of the spermatozoon.

The cavity of the cervix uteri is described in text books as a fusiform canal measuring about one inch and a quarter, beginning at the os externum below and ending at the os internum above. The mucous membrane lining this cavity is estimated to contain in a well-developed virgin cervix, at least ten thousand mucous glands.

The mucous membrane in which these glands caleld the glands of Naboth are imbedded, is covered by cylindrical and ciliated epithelium and studded by villi, especially in the larger rugæ.

Occlusion of the ducts of these glands causes their distension with mucus, when they form small translucent cysts, and if they are large enough to project like peas from the surface are known as "ovula nabothi."

The natural secretion of the cervical canal has been shown by M. Danne to be alkaline—while that of the vagina is acid. Cervical endometritis consists of inflammation of the structures named, the disease being one of glandular inflammation. The glairy mucous, which is secreted in large amount as one of the symptoms, is the characteristic discharge in this disease.

In patients who have died from some other cause, but having this disease also, an examination of the parts with a magnifying glass has disclosed the Nabothian glands enlarged and elevated, with their mouths dilated.

In some cases there is granular degeneration, the villi or papillæ being involved. In time, an hypertrophy occurs in the villi, which increase in size, project like so many hairs from the surface, and give to the os and cervix the appearance termed granular degeneration. The condition affects the vaginal portion of the cervix principally, but may extend up the canal. Another pathological state may be found; an eversion of the os and lower portion of the canal to such an extent as to keep up inflammation there by the friction of the membrane thus exposed against the floor of the pelvis, rendering the case obstinate. The thick tenacious mucous which is poured forth is loaded with epithelium, and may be tinged with blood.

The causes which *predispose* to this disease are impoverishment of the blood, frequent parturition, subinvolution and tight lacing. The *exciting* causes are laceration of the cervix, flexions of the uterus, excessive coition, endometritis, injury and efforts to produce abortion and prevent conception, and the use of intra-uterine pessaries.

Many of the causes mentioned would fail to produce it in a uterus which had not been prepared for their action by depressed conditions of the general system. Cervical endometritis may exist for a length of time before it is recognized, the patient not complaining of the discharge. The first symptoms probably, which do attract attention, will be dragging sensations about the pelvis, followed by pain in the back and loins, which will be aggravated by exercise.

In time the leucorrhœa will be noticed, the discharge having come to resemble boiled starch or thick gum water, and often irritating the vulva and vagina to such an extent as to inflame them. Menstrual derangements may follow, the mense become too scanty or too profuse, too frequent or too dilatory. Occasionally decided dysmenorrhœa exists. Generally before the disease has continued long, the constitution of the patient becomes affected. She becomes nervous, irascible, moody, and often hysterical. Her appetite will diminish, and digestion grow feeble, causing impoverishment of the blood.

This condition may continue for some time before complications supervene, but cystitis, cervical hyperplasia, and vaginitis may develop, proving very troublesome.

Pain during sexual intercourse is regarded as indicative of the development of cervical hyperplasia, rather than of the endometritis, the former becoming added as a complication to the latter. Nausea and vomiting sometimes present themselves as symptoms, aggravating the disgestive disorder mentioned, as well as deteriorating the nutrition of the already impoverished blood.

Upon making physical exploration, the patient lying on her back, the finger of the examiner will probably find the os uteri in its usual position in the pelvis, the weight of the uterus is not increased, the connecting tissue not being involved. The os may be somewhat enlarged, and its lips slightly puffed, or it may be roughened on account of granular degeneration. Sometimes, however, severe cervical endometritis may exist without enlargement of the os or any trace of abrasion or granular degeneration.

If the finger be placed under the cervix and that part raised by it, pain will be complained of, but it will be most marked opposite the os internum.

The speculum will disclose the cervix usually somewhat enlarged, its tissue swollen, puffed, and intensely red if its investing epithelium is removed and there is hypertrophy of the villi. But cervical endometritis may exist, affecting the glands of the canal, without abrading the lips of the os, in which cases, without removing the plug of mucous, the os is seen to be no larger than it should be, its tissue is not reddened, no degeneration exists, nothing visible to explain the backache, nervousness and impaired nutrition, except the profuse glairy, tenacious discharge.

The cervical cavity, in nulliparous women, may be found distended by the accumulation of the thick cervical mucous which is prevented escaping by a small external os. The cervix then has an elliptic form and is out of proportion to the size and shaed of the body of the uterus.

Cervical endometritis is not a self-limiting disease, and if unchecked, frequently in multiparous women, passes into cervical hyperplasia, with displacement, and other ills which add to her annoyances.

If the mucous which marks inflammation of the glands be slight in amount and not very tenacious in character, the prognosis is favorable, but if a considerable amount of thick, yellowish, stringy mucous hangs from the cervical canal, the prognosis is discouraging as to any definite time when a cure may be predicted, especially in a woman whose general health is impaired.

Even in mild cases of some duration from four to six months or more will be required to effect a perfect cure and even then a relapse is likely to occur. General and local treatment must go hand in hand in the management of these cases, as it is well established that by improvement of general health and hygienic surroundings, the local disease is benefited.

It will probably not be amiss at first to relieve torpidity of the liver and constipation by triturates of calomel, ½ gr. at bedtime, followed in the morning by seidlitz salt or Rochelle salt, repeated from day to day, *pro re nata*. The value of quite warm water injections, 85 to 100 degrees F. or more, daily, and especially at bedtime, have been recognized from time almost immemorial.

Great good is effected by suitably medicating the water for vaginal injections and for this purpose one part of zymocide to four or five parts of water at 100 degrees F. answers an excellent purpose, especially if we add half an ounce of boracic acid to each quart of the above mixture, in the bag of the fountain syringe generally employed.

The tube (vaginal) should be of hard rubber, the central distal (uterine) opening closed to avoid throwing the injection into the uterine cavity, and about five inches in length.

The dorsal recumbent position is preferred. With the hips elevated, the shoulders lying lower, the abdominal viscera gravitate toward the diaphragm by which the vagina is lengthened and its whole cavity may be flooded with the injection, a portion of which remains around the cervix until the erect posture is resumed.

The patient may be placed with her hips resting on the edge of the bed, with feet

on two chairs, and a rubber sheet so folded and placed beneath to elevate the hips, and its folds hanging over a tub below to catch the return fluid.

Or, the patient may be placed by her nurse and supported in the knee-chest position, if it is thought desirable to further distend the vagina with hot water disinfecting injections and to retain the same in longer contact with the os and cervix.

The position itself, through the influence of gravitation, materially aids the rectifying certain displacements of the uterus and diminishing pelvic congestions.

Having used these injections for a few days, both in the morning and at bed time, the parts will be in condition to commence the Osmotic method of medication, which we usually commence by inducing profuse exosmosis of serum from the capillaries, to further unload the surrounding blood vessels and lymphatics and thus accomplish depletion and reduction of congestion.

This has usually been accomplished by the topical application and retention around the cervix and os of pledgets of antiseptic cotton saturated in glycerine. But since we have used glycozone, which is glycerine subject to the action of ozone and made powerfully antiseptic by the Marchand method, we prefer it to plain glycerine, although the latter may be made antiseptic in a less degree by admixture with carbolic and boracic acids.

In using glycozone we prefer the prepared lamb's wool, a suitable sized pledget of which is tied around with a string, for easy removal by the patient, and being saturated with glycozone is seized with the dressing forceps and passed through a widely expanded speculum and deposited directly to the os and cervix.

If pain, locally, is a prominent symptom, ¼ to ½ grain of morphine may be incorporated with the half ounce of glycozone used and the pledget is to remain *in situ* twenty-four hours.

Belladonna or aqueous ext. opii may be substituted, the former being credited by Trousseau and Ringer with properties, diminishing the secretion of the nabothian follicles, as well as acting as an anodyne.

The pledget of glycozone will have exhausted its exosmotic influence by the end of twenty-four hours and being removed may be followed by an injection as before.

The tamponade with glycozone may be repeated every third day, alternating with the injections of hot water with zymocide until the parts have lost the appearance of congestion, when the treatment may be extended within the cervical canal by means of the cotton wrapped hard rubber probe applicator. The distal extremity of the probe being coated with a thin film of prepared cotton, and the cervix having been cleaned and dried with absorbent cotton, the wrapped probe is dipped into the selected fluid and any excess pressed out against the walls of the vial and then gently passed into the cervical canal to the os internum, and allowed to remain a few seconds before withdrawal.

Any overflow from the os should be wiped away. Many combinations have been tried. Iodine is preferred by some, it not being altered by the secretions of the cervix as most medicaments are. The officinal tincture of iodine is too weak. Churchhill's tincture (iodine gr. xxv; potassic iodide, ʒ iss; to alcohol, ℥ i.), very much stronger is often to be preferred.

A good tincture is one from ℈iiss to ʒ i of iodine to ℥ i of alcohol, with a small quantity of potassic iodide to facilitate solution. This can be applied to the cervix and canal once per week.

Iodo-tannin (tannin dissolved to saturation in the foregoing tincture of iodine, may at times be beneficially substituted; also carbolic acid, liquefied crystals) used at the same intervals acts as an anæsthetic locally rather than as a caustic, is a favorite with some gynecologists. So also is iodized phenol (2 parts of iodine with eight parts of carbolic acid.) In these obstinate cases the physician will need to have several combinations with which to alternate the local treatment. We have of late used with benefit the medicinal Peroxide of Hydrogen. The probe applicator is wrapped at its distal end with a thin film of aseptic cotton and being dipped into a solution of equal parts of

the Peroxide of Hodrogen and zymogen, the probe is gently passed up and down in the cervical canal and renewed as long as the foamy discharge shows the presence of pus or the canal is cleansed.

We then select a suitable sponge for osmotic treatment, one sterilized and bleached by the Marchand method and with its string attachment for easy removal, saturate it with equal parts of zymocide, Peroxide of Hydrogen and warm water, pass the same by aid of dressing forceps up through a widely expanded speculum in contact with the os and cervix, leaving it there for about twenty-four hours.

The patient then removes the sponge by its string and has it cleaned in warm, weak ammonia water, and it is ready to be again medicated and adjusted as before.

Perhaps a more efficient method of bringing the Peroxide Hydrogen within the cervix is by means of the cervical syringe, first devised, I believe, by Munde. This applicator syringe with its distal end coated with a film of aseptic cotton and charged with the Peroxide of Hydrogen and zymocide aa q. s., the end is passed within the cervix up to the os internum. A slight depression of the piston forces out a small quantity of the fluid which being retained in the enveloping cotton holds the liquid antiseptic in close relation with the Nabothian follicles to be passed over them frequently, so as to bring the peroxide thoroughly in contact while the foamy discharge indicates the presence of pus in the cervix.

After this direct medication of the cervical canal, the osmotic sponge saturated as before, may be left in apposition with the os for the succeeding twenty-four hours. During this local medication the general nourishment of the patient, it will be inferred from what has been said, must not be neglected.

Profs. Thomas and Munde says that if they were restricted to a choice between local and constitutional treatment in these cases, they would choose the constitutional, unless the local treatment were a surgical operation to remove the entire lot of glands.

Having chosen a suitable bill of fare, digestion and assimilation may be promoted by administering after each meal a tablespoonful of elixir of peptenzyme and one at bedtime following a glass of milk, many patients, as well people, sleeping better after taking a little light nourishment at bedtime.

This new digestant, peptenzyme, contains the concentrated extracts of all the digestive secretions furnished by nature for the digestion of a mixed diet.

Its use with food, especially cream, which it rapidly digests, as well as prepares fats for assimilation, will soon overcome the dyspeptic condition and impoverished blood.

Cases will occasionally be found in which nothing, not even both constitutional and local treatment will put a stop to the discharge from the Nabothian glands and as a dernier resort the late Dr. Sims in such obstinate cases dilated the cervix, and by means of the sharp curette, scraped away completely from the canal the entire mucous lining with its thousands of Nabothian glands.

In very obstinate cases of this disease there is occasionally some other redundant growth besides the Nabothian follicles which may be improved by removal, as cervical hypertrophy granulations around the os and mucous polypi.

After even such small operations the patient should be kept in bed and antiseptic anodyne mixtures used upon the osmotic sponge as dressing to the wounds. It should be remembered that in using the sponge to a raw surface that a cut surface of the sponge should not be applied, or adhesion would occur. The natural surface of the sponge is not liable to adhere.

LOCAL TREATMENT OF UTERINE AND VAGINAL DISEASES.

By WILLIAM C. WILE, A. M., M. D., LL. D., Danbury, Conn.

(Reprinted from the *New England Medical Monthly*, September, 1894.)

There is no class of cases that come under the doctor's care, that cause him so much trouble as those called female complaints, and the more advanced we progress towards civilization, the more frequent becomes the call to do this sort of work, and the

more obstinate they seem to cure. This condition of affairs is largely due to: 1. Corset wearing. 2. The desire to avoid child bearing, with its shifts and expedients, hot water, cold water, medicinal washes, withdrawals, *et al.* 2. Uncleanliness, not keeping these important parts in a sanitary condition. 3. Too rapid child bearing.

The gynecological surgeon has used his knife so recklessly about this neighborhood, that the revolt has come and the cry is, halt! and in emphatic tones. The days of pessaries are numbered, and only in exceptional cases are they used by any body now-a-days, while practical medication deducted from experience is in the van, with therapeutical local applications, which do more for diseased vaginal and uterine tissues than all other methods combined. Chronic inflammations either simple or catarrhal of the cervix, cervical canal, endometrium, and vagina are amongst the most obstinate of all of this class of cases to treat, and give the patient and doctor both a deal of trouble.

My method of treatment for the last two years has been as follows: Correct whatever is out of gear in the general condition, hot water douches from 10 to 20 minutes twice a day. Immediately after this douche with a glass or rubber syringe use one ounce of Hydrozone and one ounce of water, allowing this to remain while the patient lies in the recumbent position for ten minutes. Wash vagina out with water and introduce clear up the cervix one of those indispensable little tablets, Micajah's Medicated Uterine Wafers. These I have found simply invaluable in the treatment of these cases. A cure is readily affected and the patient and doctor alike delighted. (See articles headed, "Treatment of Vaginitis by Peroxide of Hydrogen (Medicinal)," by Herman L. Collyer, M. D., of New York, p. 126; "Peroxide of Hydrogen in Gynecology and in Obstetrics," by Egbert H. Grandin, M. D., of New York, p. 79.

TUBERCULAR ADENITIS OF THE NECK.

HOSPITAL CASES.—FROM THE ST. LOUIS FEMALE HOSPITAL.

By R. M. Kirley, Superintendent.

(From the *Courier of Medicine*, St. Louis, Mo., July, 1894.)

L. I. single; age 20; occupation servant; admitted into Female Hospital June 17, 1893. History: Had given birth to a child sixteen months previous. The glands of the neck began to enlarge two years previous. When admitted to hospital had an itching dermatitis of flexor surfaces of both fore-arms, also of the neck.

The enlarged glands are very tender and painful, at times suffering intense. After using anti-syphilitic remedies for one month without avail, extirpation was determined upon. Operation: On July 21st the superficial chains were removed, six in number, under chloroform. Incision was made along posterior border of sterno-mastoid down to diseased tissues, which were then enucleated. Capillary oozing was quite free but no vessel of importance was severed, although the sub-clavian could be plainly seen, pulsating in the lower angle of the cavity left by the removal of one of the deep glands. As far as could be ascertained, no morbid tissue was left behind in the dissection, which was tedious on account of adhesions to the glands. The wound was closed with interrupted silk sutures, without drainage. The cavity soon filled with blood and the line of incision was painted with iodoform-colodion and an ice-bag applied. Time required for operation, one hour. Patient reacted well.

The removed glands were tuberculous in various stages of the disease, two of which had undergone caseation, and two others had broken down and were apparently about to suppurate through the adjacent parts at time of operation.

On July 26th the stitches were removed, union was perfect except at dependent portion, where there was a superficial nidus of pus. *Washed with Marchand's Peroxide of Hydrogen* and applied dressing—bichloride gauze.

August 2nd, wound healed. August 4th, patient discharged, well.

THIERSCH'S GRAFTS IN EXTENSIVE DESTRUCTION OF SOFT PARTS ABOUT LARGE JOINTS.

By Henry W. Coe, M. D., Portland, Ore.

Reprinted from the *Medical Sentinel*, of Portland, Oregon, September, 1894.

Read by title before the seventh annual convention of the National Association of Railway Surgeons at Galveston, Texas, May, 1894.)

For a comparatively recent procedure and an operation producing such satisfactory results, Thiersch's method of skin grafting occupies very little space in medical books and almost none in medical journals.

Figure 1.

It seems to the writer that no method in surgery has been brought forward in recent years which, in a small way always, and in many instances in a larger degree, produces results which afford such general satisfaction as those given to us by the use of this process of Thiersch. Especially is this true in relation to the treatment of injuries involving the destruction of considerable areas about the larger joints.

We often see the contorted results following the older methods of treatment in cases of destruction of large portions of skin. Especially deplorable have been the results obtained after any other methods of treatment, when the loss of integument has occurred about large joints.

It has been my good fortune to meet a number of injuries in which the integument and underlying soft tissues about great joints have been involved, and in which I have, during these late years, been glad to find in Thiersch's method a satisfactory treatment. I say "good fortune," for the results are so satisfactory that the keenest gratification

must result from one's care of such cases. My excuse for this paper is the dearth of literature upon this important division of modern surgery, and the desire to present two cases in illustration.

CASE 1. A young man, 20 years of age, a kneader in cracker factory, on Oct. 16, 1893, in feeding the dough, had his hand and arm drawn between two rapidly revolving rollers up to a point several inches above the elbow joint. His desperate effort to withdraw his arm, with the crushing force of the machinery and suction of the passing dough, severed the skin above the elbow, except a small shred upon the inner aspect of the arm. At the time of the accident this isthmus was put upon the stretch, the forearm being partially flexed, and the integument was drawn down over the forearm and wrist much like an everted gauntlet.

The patient was taken to the hospital at once, where the grease and other dressings, which had been applied by fellow workmen, were removed and the skin replaced

Figure 2.

as carefully as possible. The wound was kept clean, and after three weeks the tissues destroyed by the force of the injury and loss of blood supply were removed, the granulations scraped down, and the raw surface, which at this time completely girdled the arm at the elbow joint for a space of from three to six inches, was, at one sitting, completely covered with grafts taken from the inside of the patient's thigh. Although only about two-thirds of the grafts "took," the adhering portions were so distributed and so loosely applied that the natural contraction of the tissues, together with their marginal growth, soon covered the wound with new skin. The contraction which naturally took place where grafts did not adhere took the "slack" out of the loosely placed grafts, so that the results were highly gratifying. As the grafts were applied longitudinally upon the arm, any contraction the result of cicatricial tissue formation was not so situated as to act as a band about the arm.

A wound of this nature under the ordinary methods formerly in vogue, and, for that matter, under methods often employed even at the present time, would have left an elbow joint covered with dense cicatricial tissue, to shrink, harden and crack, and

seriously abridge the action of the joint, as well as to interfere with the blood supply to the parts below the seat of constriction.

At this time, six months after the operation, the young man has as free use of his injured elbow joint as he has of its uninjured fellow. The skin over the region is loose, and has quite a natural appearance, and the circulation below the seat of injury is not interfered with in the least, and the man is now working again at his trade.

Figure 3.

The first illustration shows the wound as it was three weeks after the injury, and at a time when the dead skin, drying up and shrinking, was about ready to fall away. The forearm was still swollen, but the tissues, up to the line of demarcation, were otherwise in a healthy condition.

The second view shows the elbow flexed to a similar degree as in the former view of the arm, with the wound all healed, excepting a small portion of the outer aspect, which is closing up by marginal skin extension. This view was taken about three weeks after the grafts had been applied.

CASE 2. A boy, 16 years of age, whose knee came in contact with a set of powerful cog-wheels, and, as a result, a considerable amount of skin was torn away.

The skin grafting in this case was done upon the superficial fascia four days after the receipt of the injury. The time between the date of the injury and of the operation was consumed in attempting to remove the oil with which it had been dressed, and otherwise make the wound aseptic, the wound being dressed several times a day with peroxide of hydrogen.

The grafts took at once, and the entire surface was healed in about ten days, excepting two spaces of about a square inch each, which required four weeks to cover with cicatricial tissue by marginal extension, while fifty times as much surface adjoining had been covered with soft, pliable integument in a few days only.

The outcome in this case manifestly demonstrates again the happy results to be obtained by the use of Thiersch's grafts after injuries about large joints, in permitting free joint motion and circulation.

The views exhibited in this case, recently taken, eighteen months after the receipt of the injury, show the new skin (cut 3), the leg being flexed upon the thigh at right angles; and, again (cut 4), the new tissue picked up by the thumb and finger to demonstrate its soft and pliable condition, even over a half-flexed knee—a procedure which cannot as readily be demonstrated upon the normal skin of a flexed knee, as any one can ascertain by attempting to pick up the tissues over his own knee.

Figure 4.

I believe that my success in the application of Thiersch's grafts has been largely due to the free use of peroxide of hydrogen (Marchand's) in dilute form, used not only before the grafts were placed upon the broken surface but also daily thereafter, to carry away promptly any broken down tissues and to remove any discharge of a suspicious nature. Even when pus microbes have found entrance to such a wound, by the judicious use of this dressing the greater portion of the grafts may be saved and the melting down process aborted.

Later in the treatment I have found the balsam of tolu, upon lint, an excellent dressing to strengthen the graft, and if any open portions are present, as may be even under favorable circumstances, such a dressing will hasten the process of granulation.

One point that I desire to emphasize is that the grafts should be lain on parallel with the long axis of the limb, especially over a joint. By this means, even if but a portion of such grafts become adherent, the cicatricial tissue is broken by loose strips of skin up and down the limb, whereas, if placed over the joint, encircling the same, the failure of a single graft may result in the formation of a band of cicatricial tissue, entirely or partially encircling the limb and interfering more or less with its action and blood supply.

SCARLET FEVER.

By JAMES S. KENNEDY M. D., Chambersburg, Pa.

(Reprinted from the *New England Medical Monthly*, December, 1894.)

So much has been written lately concerning "scarlet fever" that the busy practitioner passes to the next page when his eye meets with the above title but to those who have the good of humanity at heart, I beg for a hearing.

This section of the state (Penn.) has, since May last, been cursed with an epidemic of "scarlet fever," many cases being malignant in character. This contagious exanthema as exemplified here, has been remarkable for the length of time intervening between the subsidence of all symptoms and the desquamation. In some cases desquamation did not commence until the *twenty-first* day and in others it was six weeks before it was completed. The Health Board (God save the mark) allowed the return of all the scholars to the schools without respect to the symptoms in twenty-one days, and in this way contagion was rapidly disseminated through the medium of the common or public schools.

The forms of this dreaded disease, as generally accepted, are simple, anginose and malignant, and in these authors differ widely in characteristics. Most of the cases coming under my notice were of the pseudo-membranous anginose variety. The divisions given above, are in my humble opinion, far from correct, nor are they consonant with the nature of the disease. Scarlet fever is a single and unvarying disease, differing only in degree of severity, produced by one and the same species of bacteria, same in course, requiring no more than does typhoid fever to be divided and semi-divided simply because it differs in severity in different subjects. Look at the picture of the bacteria. These are the germs that do the damage and there is no doubt that they are found in *every* case of this specific disease, either simple or malignant. The essential element of this affection is an inflammatory action of the mucous membrane alike in each case and there never was a well authenticated case, where this inflammation was not present to a greater or less extent. It may be so slight as to cause no uneasiness to the patient or even escape the notice of the physician but it is there all the same, and is always shown under the "microscope."

As to the anginose and malignant type, as they are usually called, the names are of little value for in all grave cases in which death was not due to cerebral invasion, by the third or fourth day, there developed a dangerous anginose inflammation, which although of the anginose variety still was malignant also in character. Its powers of contagion are surpassed by none and its propagation and dissemination by air currents, the physician, visitors, sewage, and a thousand and one other means cannot be successfully combated. There can be no doubt that the activity of its poison remains for an indefinite period of time. For instance this case came under my observation: A certain church was preparing a box to be sent to a missionary in the South and for this clothing, etc., etc., was requested of the congregation by its pastor. A mother who had lost her only child by malignant scarlet fever, *over a year ago*, had preserved a doll and some fine underclothing as mementoes. These articles were stored in a close fitting cedar chest, in the garret. The touching appeal by the minister, influenced her to donate these sacred treasures, and they were included in the box. The missionary's child wore the clothes and played with the doll—contracted scarlet fever—died, and strange to relate it was the only case, far or near, nor was there any further development of the disease in that vicinity.

The exact duration of the septic influence is as yet unknown and no matter how much care is taken, it can be carried away by visitors. No one realizes it more than the writer who taking every precaution, such as baths, change of clothing and disinfection yet carried it to one of his own children, who was too young to get it from any other source. On the other hand we have known children constantly exposed to its

dangers escape entirely. This part of the subject has not been as thoroughly inves tigated as its importance demands and if our scientists would give more of their time to such practical questions as "public hygiene" and less to investigations that will not do humanity one iota of good, better would it be for the public. Whatever may be the activity of this virus it is an indisputable fact, that it can be disseminated by the clothing of the physician and others, bedding, furniture, and desquamation. As to its not attacking a person a second time, I believe it does so more frequently than is supposed. I am attending a patient now, who one year ago had this disease without one single symptom absent. Her sister who slept with her a year ago escaped the infection at that time, and when this attack developed she was sent away and after an absence of seven weeks she returned home only to contract scarlet fever in five days afterwards. I believe that no matter how severe the disease is in a family the constitution must be in a certain condition to receive, retain and develop the poison.

The age of five years and under, has in my experience produced the greatest number of cases, and I have known of a death at thirty-eight years. Sex does not seem to exert any influence, but most of my cases this summer and fall have been girls. One thing I have never seen noticed is the fact that the person taking the greatest interest and personal care of the patient is very prone to suffer from aggravated sore throat, of a specific nature. Some others of the family may suffer the same way.

The symptoms of this disease are so familar to every practitioner that it would be useless to mention them, but as to the treatment each has his favorite—mine is as follows, nor do I claim anything to be strictly original: From the first rise of temperature and the slightest flush of the fauces, I give aconite, gtt. ij–iv, either in tablet form or tincture, every two hours, followed by belladonna the same dose, one hour after each dose of aconite, until the rash is thoroughly out from head to foot—then the belladonna is dropped and acid carbolici, ℥ ss, olei olivæ; ℥ x. M. Sig. Anoint all the body except the face (on which pure olive oil is used), twice daily—followed at night by a tepid bath—where the cerebral symptoms preponderate, I give in connection with that above, a suppository containing ext. hyoscyami, gr. ss–j, ext. cannabis indicæ, gr. ¼–j. camphoræ monobrom, gr. ii–v, lupulin, gr. v–xv. M. Sig. One night and morning. This will allay to a remarkable extent the cerebral symptoms such as delirium, wakefulness and low mutterings, and prevent any tendency to convulsions.

For any stomachial symptoms, Glycozone, ℥ j, aq. distillata, ℥ iij. Glycozone is a powerful oxidizing agent and in contact with the germs destroy them. The above dose may be given every three or four hours. It causes no action on the heart, kidneys or liver.

The local treatment is of the greatest importance, the fauces should at the first indication be swathed externally by a large silk handkerchief saturated in cold water, and over this a woolen bandage to prevent its too sudden evaporation, this is to be repeated every two hours until amelioration of the inflammation is noticed. Besides its local benefit, the temperature is also reduced—sponging over one portion of the body at a time is beneficial. Next in order in importance are remedial applications, and to these specially is this article directed. Hydrozone is by long odds the best local application and constitutional remedy we have in the whole range of materia medica. It has done wonders and will do wonders for you, my skeptical brethren, if I can only persuade you to use it. The following is the proper strength, viz: Hydrozone, ℥ ss, aq. distillata, ℥ iij–vj. M. Sig. Spray the throat, fauces and nasal passages thoroughly every two hours. In this last mentioned medicine we have a comparatively recent addition to our weapons to combat this scourge, and as a germicide annihilator it has no equal and in no disease is this so well shown as in the above named. It possesses virtues peculiar to itself, and no remedy will give the physician, and what is of more importance, his patient, so rapid and beneficial a result as "Hydrozone." Caution should be used in the manner of exhibiting this oxidizing agent, and only an apparatus of glass or rubber should contain it. A glass spoon for internal medication and a glass and rubber atomizer for the spray. No matter how severe the inflammatory process is in the fauces, or how much mucus is thrown out, the spray in a short time will change

the character of the discharge and give a healthy tone to the membrane, and on the second day of use the entire buccal cavity will present a clean healthy color with the inflammation and breathing relieved, and temperature reduced. Saturate the fauces with the spray, and the bacteria present and forming will certainly be destroyed. Try it once gentlemen, and I know the death rate will be reduced and this will not be written in vain.

The action of hydrozone when brought into contact with bacteria of any description, internal or external, destroys them by decomposition almost immediately. Nascent oxygen is liberated, the albuminoids of the diseased part coagulated, the pus corpuscles destroyed, and those in formation utterly routed out of existence. It is energetic, destructive, with absolutely no toxic effect, but at the same time, on account of the chemical action on the albumen, it should not be injected into the circulation. In a voluminous table of bactericide potency, hydrozone stands first, the biniodide of mercury second, glycozone third, with chioride of iron twenty-five on the list. It has been found that lime water, soda bicarbonate, thymol, and eucalyptus have no action on the microbes of pseudo-membranous anginose, when they are once *developed*, but may exert a mild preventative action. Such articles as potash permanganate, hypochlorite of lime, bichloride of mercury, carbolic acid and silver nitrate, do destroy the bacteria, but they are dangerous to the life of the patient, whilst glycozone and hydrozone are perfectly harmless. In the table of comparative strengths of the different germicides, it has been shown that hydrozone is twice as strong as Marchand's Peroxide of Hydrogen (medicinal); 3 times as strong as bichloride of mercury; 5 times as strong as silver nitrate; 10 times as strong as iodine; 28 times as strong as iodoform; 128 times as strong as carbolic acid.

By glancing over the above you will see what a valuable adjuvant we have in the treatment of scarlet fever.

REPORT OF A CASE OF EXTENSIVE GUNSHOT WOUND.

(Published by *The Journal of the American Medical Association*, December, 1894.)

BY F. H. BROBST, M. D., READING, PA.

On Aug. 2, 1894, I was summoned in great haste to see Mr. G. B., who met with a dangerous accident half an hour previous to my arrival at his residence, by a discharge of a full shell, containing No. 8 shot, from a breech-loading shotgun, into his left side. Upon examination, after anesthetization by the assistant physician, I found the whole contents of the shell, containing about two hundred and fifty shot, had entered three and three-fourth inches to the left of mid-sternum, between the seventh and eighth ribs, fracturing the ninth, eighth and part of the seventh ribs to minute pieces, tearing and lacerating the pleural peritoneum and diaphragm; lung and liver protruding, and impregnated with several shot.

At first sight the case was thought and expected to be entirely hopeless. However, I was determined to do all that could be done, so I excised a great deal of lacerated marginal tissue. I extracted all the pieces of bone obtainable, with numerous shot, and shreds of clothing from lower left lobe of lung and liver; washed out the peritoneal and pleural cavities with a warm bichlorid of mercury solution, 1 to 2500, but could hardly control capillary oozing until, as a last resort, I applied hydrozone half diluted with water, which admirably controlled all capillary oozing, and at the same time acted as a strong disinfectant.

After a thorough cleaning and removal of lacerated tissue, I brought the edges together and coaptated with silk sutures after inserting two drainage tubes; one under the lower lobe of the left lung and the other under the liver from which I ascertained there was absolute drainage. The external dressing was composed of iodoform gauze. I prescribed internally brandy, belladonna and quinin and a bland but nutritious diet.

On the third day, I found my patient restless and coughing with hematemesis and fever. Upon this I removed the dressing and washed out the abdominal and thoracic cavities with hydrozone in solution through the herein mentioned drainage tubes, and reapplied another antiseptic dressing, from which time the case made a remarkable forward progress until about the fifteenth day, when again the patient began to show some internal disturbance that on the eighteenth day proved to be an abscess on a large scale in left lower lobe of lung; this ruptured spontaneously three days later, leading to profuse purulent expectoration (undoubtedly a result of remaining shot, and small fragments of bone) breaking down the patient's vitality very much for a time which, however, was soon repaired with quinin and iron, and now the patient is absolutely cured.

I merely report this remarkably unusual case to show what can be and often is done to apparently hopeless cases.

NEW THERAPEUTICS IN HAY FEVER.

By ALEXANDER RIXA, M. D., of New York.

(Published by the *Medical Summary* of Philadelphia, Pa., for December, 1894.)

For a number of years I had the opportunity to pay particular attention to a case of hay fever of the worst kind. The case was in my own family, a brother-in-law, who is living in my house. He is forty-five years of age, weight about 220 pounds, and is a six footer. He contracted the disease about fifteen years ago, in Chicago, while attending a camp meeting of the Knights of Pythias. Since then it has appeared every year with the punctuality of good clock work, on the nineteenth of August. Early in the morning, rain or shine, the sneezing commenced with the vehemence of a volcano in full eruption, as the first symptoms of the disease. The eyes are usually swollen and suffused in the inner canthus. There is a feverish, accelerated pulse, and a rise of temperature to 101 5-10° or more. However, it is not my intention to give you the etiology, pathology, symptoms, etc., of the disease; my object is to impart to you my successful treatment.

I recollect my first experience with the case. I was called to the patient late in the night, at the period of the hay-asthma. He returned from the White Mountains where he used to spend the season, too soon, and got this attack. I found the gentleman standing at the foot of the bed holding on to the woodwork and breathing like an aggravated bellows. Having no experience in the treatment of the disease, being my first case I ordered a wash-bowl of hot water, in which I placed his hands. After a short while the intense dyspnœa was relieved, the respiration easier, so that he could sit down on the lounge. I now ordered a hot drink, hot water with brandy, almost half-and-half, still keeping his hands in the warm water. After a while I had the hot drink repeated, and in an hour he fell asleep on the lounge. The next morning he was surprised at the efficacy of my remedy, which gave him several hours of rest.

Before I visited my patient I stormed all the hand-books on the subject, and took along a vast amount of prescriptions, which were recommended by the great authors, but they all failed to help the asthma. The paroxysmal attacks returned upon the slightest change in the weather, and the asthma run its self-limited course, in spite of all my remedies. That was six years ago. Since then I experimented with the good man, who was a patient subject, with all available drugs and medicines. I cauterized his nostrils, burned it with the thermo, and galvano cautery, brushed it, washed it, pencilled it, and still the next year the hay fever returned with the same vehemence and on the same day. Certainly I gave him relief, every year more, but to stop the out-break of the disease, I succeeded but for the last two years.

My mode of treatment to prevent or abort the disease, consists of the following: Three days before the onset of the disease, I commence to wash the inner nares with a solution of Peroxide of Hydrogen (Marchand's), *one* part of hydrogen, and *two* parts of boiled water. This year I used *Hydrozone*, a new preparation, which has the double strength of the former, and is one of our best germ killers. I took *one* part of *Hydrozone* to three or four parts of water, according to the indication, three or four times a day. I use a nasal douche holding one pint of the fluid. By this process I suceeded to prevent the outset of the disease in all my cases. There is but very little irritation of the nose present which causes the patient hardly any trouble. However, for those most sensitive I have the following prescription:

℞ Acid. boracic, gr. viij.
Sol. cocaine hydrochlor, ʒ ij.
(Five per cent.)
M. Sig. Use in atomizer.

The nasal symptoms, or the hay fever, proper, has a duration, according to my observation, of about two weeks. After the expiration of this time, the hay asthma sets in, and two days later the hay bronchitis follows. Up to the past year I have not succeeded, in spite of all my efforts, to prevent this stage of the disease. Last year and this season, however, I succeeded rationally with the following remedies: My observations of former years taught me the lesson, that when this period approaches, certain branches of the bronchial tubes get clogged up with tenacious mucous, which none of our expectorants could dislodge in a hurry. I succeeded but once with a desperate dose of apomorphia to remove this obstruction and the asthma disappeared like magic. However, in a short time it re-established itself and kept tight for some ten days and sometimes to the end of the season, of course with more or less severity. Considering this pathological condition, I started in right at the time when the hay fever should appear with the administration of the following prescriptions:

℞ Iodide of ammonia, ʒ j.
Fl. ext. grindelia robusta, ʒ iv.
Fl. ext. yerba santa, ʒ iv.
Aq. q. s. ad., ʒ ij.
M. Sig. A teaspoonful four or five times a day.

For the first week, while the second week I ordered to be taken every three hours in teaspoonful doses adding yet the following medication:

℞ Terpin hydrate, ʒ j.
M. Fiat capsule No. xii. Sig. Two capsules every two to four hours.

These medications acted like a charm and prevented the asthma during the entire season. It seems to act in the way of preventing any accumulation of the discharges in the bronchial tubes and branches. The last stage of the disease, or the period of the bronchial catarrah, I have, thus far, not succeeded to avert, notwithstanding that there is no accumulation of mucous. However, as it forms the mildest part of the disease, the patient cares but little for the cough, which can easily be controlled by small doses of codeine or morphia. Stimulating drinks are beneficial. Grogs and punches as well as good wines are advisable, all through the different stages of the disease. The intestinal tract should be kept in order and late or heavy suppers prohibited. In some of my milder cases patient attended to his business during the whole period, and was not compelled to stay in the house like in former years.

PELVIC PERITONITIS WITH RESULTING ABSCESS.

By F. P. LEFFERTS, M. D., Belvidere, N. J.

Read before the New Jersey Homœopathic Medical Society, October, 1894.

(Published by *The Hahnemannian Monthly*, of Philadelphia, Pa., January, 1895.)

This case is presented not because of anything remarkable in the treatment or in the results attained, but rather that pelvic abscess in not very common; to emphasize the tediousness of such cases, and to refer to the local treatment which seemed of benefit, and to see whether any can give suggestions in the way of an improved treatment.

Mrs. X———, æt. 43, the mother of one child twenty-three years ago. Has been afflicted with endocervicitis with erosions of the os for years, for which a good deal of local treatment has been used. This inflammation of the cervical canal has resulted in thickening the body of cervix, and constriction of the external os. Has latterly had thickening of right Fallopian tube and some enlargement of right ovary.

Suffered from the first attack of pelvic peritonitis five years ago, which came on two weeks after a moderate dilatation of the cervix for the relief of the constriction of the external os. Temperature was 103° during the course of this attack, and much abdominal pain was suffered, particularly in the right iliac region. This attack, lasting four weeks ended in resolution.

Had a second attack of pelvic peritonitis two years ago, during which the symptoms were less severe and temperature more moderate, but attack was more tedious, being confined to bed six weeks and terminating in resolution, but there remained peritoneal thickening posteriorly and more fixation of the uterus than after the first attack.

The last attack, which resulted in abscess, was ushered in on November 12th last, after carriage rides on two successive days, when she was nearing her menstrual period. Had two slight chills after retiring, followed by moderate fever and some pain in back.

Moderate fever continued until afternoon of November 15th, when she was seized with a very hard and long continued chill, which was followed by a temperature of 104 1-5°. This temperature decreased in a few hours and perspiration was induced. Temperature was 101 1-5° at 3 p. m. of the 16th. The temperature ranged from 100° to 101° for several days, accompanied by swelling and tenderness of the peritonæum surrounding the uterus, and fixation of uterus. As the inflammation increased the uterus was pushed forward and formed a tumor above the pubes. The stomach was very irritable, nausea coming on during sleep, which often resulted in vomiting. She was fed on a liquid diet exclusively. There was very little pain in the abdomen. Temperature did not rise above 102⅕° after the 15th of November. Pus formed and fluctuation became apparent in the Douglas cul-de-sac and caused pain in lower part of the back. There was considerable enlargement of the abdomen, showing the inflammation to have extended over a large area. The accumulation of pus was so large that fluctuation was not distinct.

On December 8th, while under the influence of ether, Dr. Seibert, of Easton, evacuated the pus by an incision made as near to the rectum as possible per vagina. The discharge of pus was very profuse and offensive. All went well for a few days, when there was a rise of temperature and other symptoms indicating that the pus was not having free exit. The operation was repeated on December 13th, and the incision was made deeper and the opening made larger, when there was another profuse discharge of offensive pus. The temperature decreased after this operation. Pus discharged freely for a long while. Began using a weak solution of carbolic acid to wash out cavity of abscess daily. The effect of this seemed to be very little judging from the amount of discharge, but she grew stronger and improved in a general way. After using injections of carbolized water for a month or more, began using a 25 per cent. solution of Marchand's Peroxide of Hydrogen. This had more influence both in reducing the amount of discharge and rendering it less offensive. It was gradually used

tronger until it was used full strength. It was found more effective used in this way. The patient continued to have some fever until four months had elapsed after the operation, when she was allowed to be around her room some. Continued washing out the pus cavity once daily for nearly five months, when the discharge was so moderate that it was done only every second day, when we tried to hasten the healing by the use of Glycozone, after first cleansing the cavity with Peroxide. The discharge became more profuse while using this, consequently it was given up.

A solution of permanganate of potassium was also used for a time, but not with as satisfactory results as from the Peroxide. Recourse was again had to the Peroxide, and we began using it twice daily the latter part of May. Continued its use in full strength twice daily for the next two months with the result of a gradual decrease of discharge of pus and in the depth of pus cavity. During the latter part of July began using the injections once daily, which was continued for two months, with the result of a gradual decrease in the discharge.

Patient suffered a relapse on August 21st owing to over-exertion, but was convalescent in ten days. We have tried again to see whether an injection every second day will not be sufficient, but find that the discharge increases. The cavity seems about an inch in depth at this time and the discharge very moderate, but there are indications that it will require weeks still before the cavity will be closed. Patient's menstrual flow did not appear for three months after the beginning of the attack. For the past four months she has been able to do light housework and take short walks, and a few times has been in a carriage by driving on a walk.

A PRACTICAL THEORY AND TREATMENT OF PULMONARY TUBERCULOSIS.

(Abstract from the *Philadelphia Medical Times and Register* of January 26, 1895.)

In a lengthy paper on the above subject, which doubtless marks a new era in the study of tuberculosis, Dr. Frank S. Parsons, editor of the *Medical Times and Register* of Philadelphia, Pa., has shown that pulmonary tuberculosis is primarily due to a lymphatic stasis. That such stasis may be congenital or acquired. That the bacillus tuberculosis is to be regarded as a development, existing simply because a favorable medium is presented, in the lymphatic stasis, for its cultivation. Bacilli may exert influence on the disease as foreign bodies, similar to other foreign or waste elements, but are not primarily causative. Their mere removal will not cure the disease, except as such removal implies restoration of perfect excrementitial function and lymphatic circulation. That tuberculosis implies atrophy of the pancreatic gland in the majority of cases, and the dislike of fats by phthisical persons is the only symptom we can depend upon to show that with the pancreas may lie the origin of this disease.

In the treatment of this affection Dr. Parsons calls attention first to the catarrhal condition of the stomach, and considers that on the successful treatment of this condition lies the curability of tuberculosis; for, only by removing chronic catarrhal inflammation of the stomach and intestines may the physician hope for proper assimilation of food or medicines.

"To begin with," he says, "it will be found of advantage to insert a stomach tube and thoroughly wash out that organ, teaching the patient the art of performing this feat himself. The solution used for this lavage should be a 1 to 16 dilution of Hydrozone in warm water. I prefer the Hydrozone to the Peroxide of Hydrogen for the following reasons: It is double the strength of the latter, its taste is not objectionable, and it is more active in its therapeutic qualities. The solution should remain a few minutes and then be syphoned out through the tube."

"Hydrozone acts in two ways on the mucous membrane of the stomach chronically inflamed; first, it clears the surface of excess of mucus, combining with the pus to form carbon dioxide and nascent oxygen (both gases, and easily removed through the tube); second, the oxygen of the preparation acts directly and favorably in stimulating the mucous membrane and underlying glands, thereby favoring the circulation of the blood and the performance of function."

Second to this method, for the treatment of catarrh of the stomach in tuberculosis, is the internal administration of Hydrozone before meals. A dilution of one part to thirty-two of water may be employed in this manner; a glassful of the mixture taken half an hour before meals. If the dilution is too strong the gas generated will be distressing to the patient. On that account it will be frequently advisable to administer Hydrozone diluted one part to sixty-four of water. Glycozone (c. p. glycerine treated to fifteen times its own volume of ozone) may be used alternately with the Hydrozone as a curative agent.

Then Dr. Parsons treats of the various methods necessary to build up the body, the value of ozonized atmospheres and inhalations and the medicinal management of tuberculosis, in a practical way. Anyone not having read this article should obtain it from the publishers. It is now published in book form.

THE SUCCESSFUL TREATMENT OF RIGGS' DISEASE.

By H. E. LEWIS, M. D., of Burlington, Vt.

Published by *The Vermont Medical Monthly*, January, 1895.

A short time ago a member of my family, a gentleman of forty-five years of age, was suffering with what was believed to be Riggs' disease. There was no evidence of ulceration, no swelling and little soreness to speak of, simply a very evident loosening of the right incisors, and canine in the lower jaw.

Several dentists examined the teeth, confirmed the diagnosis, but declared that there was not much to be done except to await developments.

A solution of Hydrozone was made in the proportion of one ounce of Hydrozone to four of distilled water, and used as a wash.

The treatment commenced at 6:30 P. M., and the mouth was washed very thoroughly three times before retiring, some of the solution being retained in the mouth each time for about a minute. The escape of gas showed plainly the presence of pus though in small quantity.

In the morning there was a marked change; the teeth were much firmer, what soreness had been present had entirely disappeared, and the test for pus gave no reaction whatever.

A weaker solution (about one to twelve) was used every four hours all day, and at night just twenty hours after commencing the use of the Hydrozone, the teeth were as firm as ever and have been ever since. But in order to prevent a recurrence of the trouble a weak solution of Hydrozone (about one to twenty-four) is used every morning as a mouth wash.

From its great antiseptic qualities it is found to be an excellent wash for cleansing the mouth of every bad taste, and rendering it pure and clean.

THE PLASTER OF PARIS, WOOD, ALUMINUM, PAPER, LEATHER AND STEEL SPINAL SUPPORTS.

By A. M. PHELPS, M. D., New York.

Professor of Orthopædic Surgery in the University of the City of New York and the New York Post-Graduate Medical School and Hospital; Professor of Surgery in the University of Vermont; Surgeon to the City Hospital; President of the American Orthopædic Association.

A discussion of Dr. L. A. Sayer's paper on the history of the plaster of Paris corsets, read before the Academy of Medicine at the annual meeting, January, 1895.

(Reprint from the *New England Medical Monthly* for March, 1894.)

I am exceedingly obliged for the courtesy which has been extended to me to discuss the paper of the evening. With nearly all of the points which have been raised in this paper I fully agree. And that the plaster of Paris corset, in my opinion, is one of the best support for Pott's disease of the spine ever devised, my experience verifies. Without it, it would be difficult for me to conduct the clinics and dispensaries of which I now have charge. While it contains many defects and demerits, its good qualities will more than over-balance the bad, and because of this, and because its application is based upon accurate, scientific principles I give it a most hearty endorsement.

I have used the plaster of Paris corset from its very first inception. I have watched its growth from the time of its first application. I have seen it fail through bad materials and worse application. I have seen it bitterly fought against by its opponents, receiving just and unjust criticisms. I have watched its methods of application gradually re-constructed, the materials from which it is made improved, and I am free to say, after fourteen years of experience, that it is one of the best supports to be used in Pott's disease of the spine the world has ever seen. The arguments which have been urged against its use are most fallacious. That it does *not* support is argued by some of its bitter adversaries. But when a patient is suspended in Pott's disease of the spine, and a jacket properly adjusted, it is at once relieved from a condition of pain and suffering, and to such an extent that any amount of pressure upon the shoulders does not produce pain. I am convinced that something does support. If it is not the jacket, what is it? A patient is suspended in lateral curvature of the spine. A plaster corset with lacings is made to fit this suspended and straightened position. After the corset has been adjusted the patient is three inches taller than before its application. If the corset does not support, what makes him three inches taller? I have personally observed this change in many cases, and no amount of argument advanced by the opponents of the plaster of Paris corset can possibly disprove a clinical fact. One fact is worth more than a thousand theories. The first book written on steam navigation by an Englishman, in which he attempted to prove that a steamship could not cross the Atlantic ocean, was a failure, because, after his book was printed, it was brought to this country by the first steamship. And so it is with this argument—the patient *is* three inches taller with the corset than he is without it. What makes him three inches taller? Support. It is true that this corset becomes filthy; vermin invade it; but it is inexpensive, and can be changed, if necessary, once a month. Much better this than the application of a steel brace, that a mother and nurse can remove at liberty, handling the child in such a manner as to produce trauma and injury to the diseased vertebra. The steel braces must be frequently removed or else excoriations will occur. They excoriate and are uncomfortable if they give support, which is one of the strongest arguments against their use in Pott's disease of the spine.

We are all agreed, I believe, that the best orthopædic machine ever devised is the human hand. Guided by an intelligence, it applies forces for the correction of deformity, more delicately and perfectly than any inanimate object ever invented. Plaster of Paris is applied to the deformity. While in the plastic state the hands mould it to the correct position, and hold it there until hard or set. Can you not see that now the plaster of Paris continues to do the work exactly as the human hand did it? In other words, plaster of Paris is effective as a brace of support only in proportion to the amount of gray celebral matter mixed up with it. In the absence of the latter it is worthless. Proper materials must be used, else the plaster will not set rapidly. H. B. Claflin & Company make a perfect hospital crinoline, containing just the proper amount of sizing and no indigo. The White Dental Mfg. Co., of New York, puts up the plaster in tin cans, hot from the oven. These two materials make, when put together properly, a perfect bandage, that will set in five minutes. This rapid setting of the plaster is necessary, because the hand holds it to the corrected position of the deformity. This material, with the stockinet sold by Ford, completes the materials necessary to make a perfect corset. The crinoline costs 6c. a yard, the plaster of Paris 3c. a pound, and the stockinet 30c. a yard. A corset for a child six years old should weigh not to exceed one and one-quarter pounds, and for an adult two and three-quarter pounds. This makes a support as light or lighter than the steel brace, and it supports as the steel brace cannot.

What the profession wants is a proper brace, one that will apply extension and relieve pressure, and also act as an anterior-posterior support when necessary transmitting the weight of the body through the transverse and articular processes, thereby relieving the bodies of the diseased vertebra, Such a support is to be found in the plaster of Paris corset. It removes from the nurse or the mother the possibility of interfering with the dressing. By its particularly broad, even surfaces, if properly applied, it does not excoriate, and can be worn for one or two years with comfort. Springing or bending the corset anterio-posteriorly makes it an anterio-posterior support. Thus we see that it combines the good qualities of all the steel braces that have ever been devised, and one more, and that is *extension for the relief of pressure.* The corset is heavy when improperly made. It is not so porous as we are led to believe. Its thickness makes it objectionable to women. This has led me to substitute for it the wooden corset, the paper corset, made from paper such as is used in making paper boats, and the aluminum corset. These corsets combine all of the good elements of the plaster of Paris corsets, and, in addition to these, lightness, durability and thinness, which does not interfere with the clothing of women.

In clin'cal work and among the poor patients the plaster of Paris corset fills the gap that nothing else can possibly fill. These patients, supported by steel braces, I am informed, and I have observed almost invariably go on from bad to worse as regards deformity. They certainly do in disease above the eighth dorsal vertebra. I feel satisfied that in this class of patients the steel brace will be utterly abandoned in the very near future. They certainly should be in lateral curvature of the spine in any case. Now, in private practice, I know of no better dressing for Pott's disease than a light and thin plaster corset during the acute stage, after which the corsets that I have already mentioned, and which we use, will be found to be more comfortable and agreeable to the patients. The difficulty with leather corsets is that they fail to support, because they do not retain their shape—as a boot changes upon one's foot, so will a leather corset change upon the body. The spinal support for Pott's disease of the spine must be unyielding and firm. The paper corset first made by Vance is, in some respects, a good one; but it is not desirable; it is difficult to make and it is somewhat expensive. Since the time of Vance, other paper corsets have been made, according to different formulæ, but they are made of paper, and are, really, only modifications of Vance's idea. The corset made by Weigel, of Rochester, N. Y., from the paper used by printers in making their stereotypes, he claims, is durable and comfortable. The corsets made for me by Horace Waters & Co., of Troy, N. Y., after the paper boat

formula, have proved most satisfactory; but it is more bother to get them than I care to endure. Other corsets made in this city, similar to that made by Vance, are open to the same criticisms as those mentioned. The Jurymast and corset, when adjusted so as not to lift the head, but to draw it backwards, so as to transmit the weight of the head through the transverse and articular processes, makes the most efficient dressing that I know anything of, and particularly so in upper dorsal and cervical disease. So far as I have observed the deformity does not increase, as is the case with a steel apparatus, in diseases of the upper dorsal.

Dr. Sayre has accomplished much by his constant and indefatigable hammering at the profession towards introducing the idea of partial suspension and fixation in Pott's disease of the spine, but the idea of partial suspension and fixation in Pott's disease of the spine carries us back almost to the traditions of medicine. Ambrose Pare, in 1579, used a fixation apparatus, made from steel, which is almost identical with the aluminum corset which I am using.

In 1696, Von Nuck made a suspended apparatus which has been in almost constant use in Europe since that time. It is very similar to that used to-day, bearing the name of the distinguished author of the paper of the evening. In 1700, Heister devised an anterio-posterior support, which, in principle, is the same as Taylor's brace used to-day. It has been in use in England since that date. In 1754, Hauermann made a modification of Von Nuck's suspension apparatus, which seems, however, to be more a change of material than principle. In 1764, Levacher devised the Jurymast, which was attached to a corset made of steel and canvas, and was used precisely as the Jurymast is used to-day. Portal, in 1772, slightly modified the Jurymast, but attached it to a corset in the same manner. In 1825, De La Croix still further modified it by adding the chin piece. Heine, in 1832, still further modified Levacher's Jurymast by adding a chin piece and attaching it to a steel hip-band corset. These Jurymast suspensions, taken together with the description of its use, are identical with those in use at the present time. About the only thing that this generation can claim in regard to spinal supporting is in the change of materials, using the principles laid down in the last century and the beginning of the present. They have been in constant use since then, and also the principles, as exemplified here to-night. I believe them to be correct.

I offer the aluminum corset, not as a substitute for many of the braces and corsets now worn in the acute forms of Pott's disease and lateral curvature; I suggest it, rather, to take the place of such braces in cases requiring permanent bracing, or in individuals who are desirous of securing a support at any time which combines durability with lightness and comfort. So soon as a case of lateral curvature has been arrested, or the greatest amount of benefit has been derived from treatment, the aluminum corset will then be found a most agreeable, permanent support. The aluminum corset has these qualities to recommend it to the patient:

1. Lightness.
2. Durability.
3. It is thin and does not interfere with the form and clothing.
4. Being extensively perforated makes it the coolest and most agreeable of supports.
5. The patient can wear it during bathing.

An ordinary corset weighs from one to two pounds, depending upon the size. To prevent cracking and to protect it from perspiration, it is covered with a waterproof enamel, which is applied by heat.

The steps of its construction: Make a plaster form of the body; send this form to the foundry and have a cast iron anvil made; polish this, and then at a certain temperature the workmen will bend on to it two sheets of aluminum representing the two lateral halves. The frequent heating and hammering together with the cylindrical shape makes the corset almost as strong as steel. The two halves are hinged in the back and closed with automatic clasps in front, which stop at any notch to accommodate itself to the body before and after eating. This corset completes my armamentarium in cases requiring spinal supports, viz.:

1. Plaster of Paris corsets for acute Pott's disease.

2. The Wood corset for lateral curvature, and cured or convalescent cases of Pott's disease.

3. The Beely corset for mild forms of lateral curvature, particularly in girls.

4. The aluminum corset for permanent bracing; and, lastly,

5. The celluloid corset, which, in a way, takes the place of the aluminum.

I visited Dr. Waltuck, of Odessa, Russia, in 1888, and from him personally I learned the details of making the Wood corset, after several days of hard work. I found that Professor Lorenze, of Vienna, has been using the corset for some time and was much pleased with it. At that time, however, many of the corsets proved to be inefficient on account of errors in their construction. We have used the corset constantly since that time, and with the modifications which we have made, it is one of the most efficient, comfortable and suitable braces that I know of.

It has been with the greatest difficulty that we have succeeded in getting the proper materials for constructing the corset, and even now it is cheaper and better to import the wood from Vienna. The spruce timber which grows there makes a better shaving than any timber that we have attempted to use which grows in America. It is tougher and works better with the glue.

An impression is made of the body with plaster bandages. This mould is filled with plaster of Paris, which makes a perfect cast of the body. The corset is now made over this cast. The cast is changed somewhat in shape to make the form even straighter than the body in the suspended position.

Corsets made according to the method followed at the time I observed the process, were not as perfect as they should be. The slightest excess of glue moistened by the perspiration of the body coming in contact with the shirt or the skin, was exceedingly disagreeable. The perforations in this corset weakened it, and allowed the glue to exude during perspiration.

To obviate all this I had the corset perforated, in which perforations eyelets were punched. A special machine facilitates the perforating and the punching of the eyelets. The lacings are stitched on. Trim the top and bottom with kid. The entire corset is shellaced inside and outside with two or three coats of shellac, which render it impervious to moisture, the eyelets ventilating it perfectly. The improvements which I have made in the corset consist in shellacing it on the inside and outside and putting in the eyelet holes and eyelets, which add to the strength of the corset and ventilate it perfectly.

An ordinary corset for an adult weighs from one to one and one-half pounds. They are very durable, very comfortable to wear, and thus far I believe that they are the best spinal braces yet devised.

I will add, by way of parenthesis, that the corsets, when completed, can be covered with silk or with stockinet, or they can be left in the linen finish.

A word or two in regard to abscesses occurring in Pott's disease of the spine. The orthopædist is inclined to trust them to nature, as he does in abscesses of joints. Pus living in contact with the diseased vertebra destroys them, and what was at first a small focus of disease, in a few weeks by this macerating process becomes an extensive disease, involving frequently the entire body of the vertebra.

We *never aspirate such abscesses.* So soon as they are detected they are at once incised and thoroughly irrigated with a solution of bi-chloride of mercury, 1 to 2,000, after which they are washed thoroughly with Hydrozone until foaming ceases. They are then either packed with gauze saturated with iodoform, ℥ ss, glycerin, ℥ iv. Small foci of diseases are curetted. Abscesses appearing at Poupart's ligament are incised and treated the same as other abscesses, only a half-inch drainage tube is passed up to the seat of disease on the end of a strong probe. This is the sewer through which pus can discharge and not burrow through the tissues. All abscesses should be opened, excepting when something communicates, *then open them.*

RATIONAL THERAPEUTICS OF CHOLERA INFANTUM.

By GUSTAVUS BLECH, M. D., St. Louis.

Published by *The New York Medical Journal*, March 2, 1895.

No strict rules can be given for the treatment of disease. It is for this reason that so many physicians say we do not treat a disease, but we treat an individual. True enough, we treat the individual, but what we have most of all to consider is the disease. The individual will dictate us alterations and modifications in our treatment.

A general plan of treatment may be outlined, however, and I will try to do so in regard to one of the most fatal diseases of babyhood—cholera infantum.

There is a certain philosophy in therapeutics which I would frame in the three following rules: First, remove if possible the disturbing causes; second, treat symptoms which *per se* are liable to endanger the life of the patient; and third, sustain vitality.

As said before, the therapeutics, which is based upon the ætiology and pathology of a given case, is the only one to be employed.

Now, the ætiology of cholera infantum is not so obscure as asserted by a good many authors. Whether or not of microbic origin, one thing is sure—it is due to a chemical decomposition of food, causing an inflammatory condition of the digestive and alimentary canal.

Clinical experience, furthermore, shows that this disease is of a grave character, producing death in a large proportion. Heat *per se* is not the immediate cause of this disease, but it influences its course considerably. Therefore, gastric or intestinal disturbances in summer demand a closer attention than those which occur during the colder season. Cholera infantum is a disease met even in the palaces of the rich, although not so often as in the tenement houses of the poor, which fact proves again that bad air, filth, and lack of ventilation are also of a predisposing influence, as well as an obstacle to a quick cure. The mortality in the tenement houses is larger than that of the richer parts.

If we consider the aforesaid, we shall first of all, as regards the treatment of this disease, have to restrict diet.

As soon as called to a case of cholera infantum, prohibit for the first day any food whatever. Mothers have no right to nurse the little patient either. Strict instructions must be given in that direction, because the timid mothers are often inclined to quiet the crying babies by putting them to the breast.

Remedies are of very little value. Beginning with calomel, salol, and all the newer antiseptics, finishing with subnitrate of bismuth—they have all proved a failure, for none of them work quickly enough.

The treatment as outlined by Dr. Elmer Lee, of Chicago, in his cases of typhoid fever, proved a success in my hands during last summer, and under this treatment I have lost only one patient out of twenty-three, while the monuments of my skill exercised during the year 1893 are decorating the cemeteries of the State of Connecticut.

So far as I knew, the best antiseptic (which has also a strong tendency to reduce local inflammation) was peroxide of hydrogen (medicinal) until hydrozone was used by me. Hydrozone being twice as strong as Marchand's peroxide of hydrogen (for economical reasons), the latter drug is preferred by me. This remedy can be administered internally as well as externally.

I add a tablespoonful of hydrozone to a pint of water for washing out the stomach. The vomiting ceases after the first washing as a rule. If necessary, this procedure can be repeated. If the vital power of the little patient is not too low it can produce no harm. But in every case, no matter how far advanced, I do not omit an irrigation of the bowels, for which purpose I use a soft rubber catheter attached to a common bulb syringe. The catheter is introduced as high in the colon as possible. It is unneces-

sary to say that the water must first be sterilized. I do not agree with Dr. Lee in using hot soap water. On the contrary, I use cold water, and add to each quart about two ounces of hydrozone. The improvement after the first or second irrigation is marked. If necessary, these irrigations can be repeated every two hours.

Among other remedies there are only two to be employed, morphine and strychnine. Both ought to be administered hypodermically. Their indication is too well known and they are about all we need. No antipyretics should be given. If the fever is very high and if the irrigation of the bowels does not reduce it, the whole body should be washed with alcohol.

The diet for the next twenty-four hours should be very light indeed. Sweet, strong Russian tea is all I allow.

Each individual case will teach us when food can be allowed again.

Since the adoption of this mode of treatment I have met with the most remarkable success, and no honest practitioner should refuse it a trial.

11 N. BROADWAY.

A GLANCE AT THE MANAGEMENT OF CAPILLARY BRONCHITIS IN INFANTS.

BY DOUGLAS H. STEWART, M. D., NEW YORK.

Physician to Harlem Dispensary.

Published by *Times and Register*, of Philadelphia, Pa., Feb. 17, 1894.

The treatment has for many years been emetics, ammon. carbonat. and ammon. chlor. Of the emetics, syrup of ipecac is time-honored, and deservedly so; but have you never ordered this valuable remedy and on returning found your patient worse, and not a sign of vomiting? My experience of this preparation as made or kept in the average apothecary shop is far from comforting, one-half a teaspoonful of one sample, acting as an emetic, while a teaspoonful of another only made the little child nauseated and depressed.

It has seemed wise to me not to tell the nurse what I was giving at all, but to order syr. ipecac, two ounces, a teaspoonful to be given every twenty minutes until vomiting or purging, then stop; and I have generally gone back to smiling faces, instead of solemn remarks about the medicine not acting. Whatever is given in excess of the requirements will be either vomited or purged.

Children under three years of age do not expectorate, but we often notice quite an amount of mucus or muco-pus unloaded from the bowels. The mother will often make an anxious complaint that the child does not "raise anything," but a prompt statement that little children never do, and an exhibition of the slimy passages contained in the diaper, will go far to reassure her both as to her fears and your knowledge of the case.

The ammonium compounds I have discarded—as the only real effect I could ever find from them in the acute stage was that they made my patient sick "at the stomach." Of course, I am a heretic, and deserve boiling in oil for such a statement, when all the prominent physicians of the early part of this century set the seal of approval on the chloride and carbonate—still, this is a clinical paper, and I can only give the results of experience, and not of a diffusible, stimulant, expectorant theory, and, after using them till you have lost many cases, face about and give one teaspoonful every hour of the liq. potassa citratis or mist. pot. citratis—a simple refrigerant diuretic—agreeable to child, lowering the temperature and having a most soothing effect on any acute inflammation.

Let the expectorants alone. They only increase the activity and congestion of the mucous membrane.

Externally, if the patient is strong, flaxseed poultices; if weak, no poulticing at all —but turpentine "liniment" rubbed in thoroughly every three hours, from the chin to the pubes in front and from neck to coccyx behind.

My patients have all their clothing removed; the bandage generally worn since birth, especially. Have the abdomen free—this is the first commandment. Then a loose cotton or muslin night gown put on, and over this a blanket—all very loose—pinned at the neck and down the front, if necessary, with large safety pins. Don't put the patient next the blanket; some skins will not stand wool next them.

The sick room should be kept at seventy-five degrees—a thermometer is indispensable. On a stove, or over an alcohol flame, boiling water, and into the kettle a teaspoonful of turpentine poured on the steaming water every hour, so that the case is constantly in an atmosphere of steam and the steam carries minute particles of turpentine.

Should a case prove a bad one, or not making the progress I could wish, the blanket is opened and handkerchiefs wet with dilute alcohol or whisky, are spread over the chest and abdomen every fifteen minutes.

The parents will not permit cold water packing, because they fear the child will "take cold." Alcohol or whisky is quite a different thing in their eyes from water, and they know that heat destroys the strength and virtue of spirits, and they approve of spirits, externally at least, if not in every other way; therefore they will usually gladly second cold liquor compresses.

Keep up the packing until you find a very decided improvement—as you will if it is not too late. An improvement in breathing, in cyanosis and dyspnea, and a fall of from one-half to one degree in rectal temperature.

Then rub the child well with dry towels and replace blanket and gown.

Should any signs of collapse appear, dry heat or a hot bag will offset them.

The alcohol or whisky acts in four ways. First, some is absorbed by skin, and breathed in as a vapor. This stimulates. Second, the reaction from the cold brings the blood to the surface and away from the lungs. This relieves congestion. Third, the cold stimulates the heart and makes the patient take deeper inspirations. Fourth, it lowers the temperature.

After this I give from ten to twenty minims hourly of peroxide of hydrogen in the following non-oxidizable mixture: *

℞ Marchand's sol. Hydrogen Peroxide, ʒ v–x according to age.
Glycerine ℥ j.
Aq. q. s. ad. ℥ iv.
M. Sig. One teaspoonful every hour as directed.

This is supposed to supply some of the lacking oxygen to the blood and it does seem, from its effect, as if the stomach did take it up.

It will be noticed that I have written "Marchand's Solution"—well, if your have used any other kind for this purpose, I am sure you don't need my arguments to convince you that you were disappointed. Also please remark that there is nothing to spoil the peroxide in the above mixture.

In conclusion watch the urine carefully, especially look out for suppression. You will scarcely find it when giving potassium citratis—otherwise you may, and when you relieve the suppressed urine you will often relieve the dyspnea.

* A mixture of glycerine with Peroxide of Hydrogen will not keep for more than three days. Consequently, it must be made fresh every three days.

See article headed "The Therapeutics of Glycozone" by Dr. Cyrus Edson, page 11.

After the fever is nearly or quite gone and the cough only is left, I generally start my expectorants, and have found the following commonplace mixture serve me well—combined with our old standby oleum morrhuæ emulsion q. s. ad. lib.

℞ Ammon Carb., gr. xx.
Vin. Ipecac, ʒ j.
Syr. Senegæ, ʒ iv.
Glycerini, ʒ iv.
Vini Xerici, ʒ iv.
Syr. Tolu, ℥ j
Aq., q. s. ad., ℥ iv.

M. Sig. A teaspoonful every two or three hours until cough is relieved.

℞ Syr. Hypophos. Co., ℥ ij.
Syr. Calc. Lactophos., ℥ ij.

M. Sig. A teaspoonful four times a day until relieved.

LANE MEDICAL LIBRARY

To avoid fine, this book should be returned on or before the date last stamped below.

U671 Marchand, C. 14847
M31 Peroxide of hydrogen.
1895

NAME	DATE DUE